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California's Computer Magazine

MAY 1987 • ISSUE 31

FREE

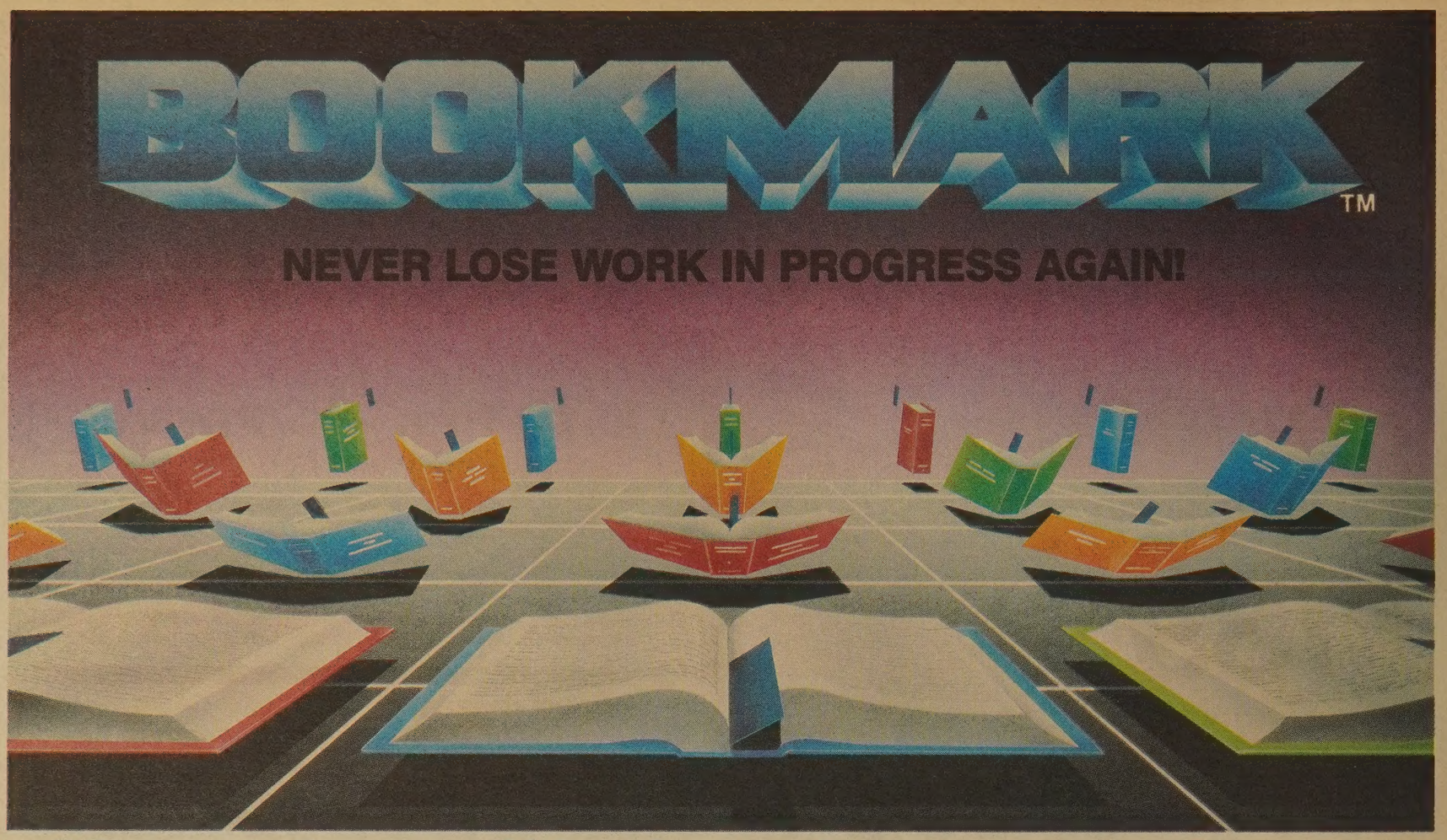
MICROTIMES™

Russell Hertzberg (l) and Ash Jain of AST Research

SPECIAL SECTION:
MAC @ WORK
WriteNow • MS Word 3.0

AST: POWER THROUGH CONNECTIVITY

On-Line Desktop Publishing Seminar And Exhibition Information Inside



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Microspeed	Fast 88	PC/XT	NO	6.1/6.7/7.4	149

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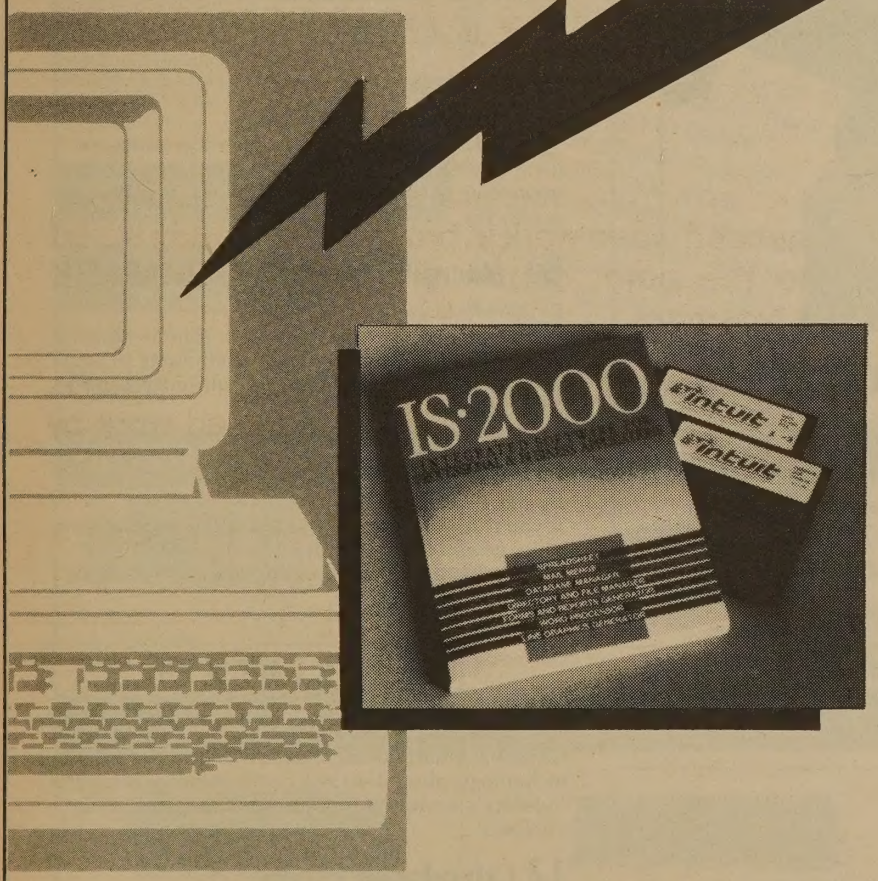

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MICROTIMES

COVER STORY

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52 AST Makes The Corporate Connection

By Jeff Spurrier

Irvine-based AST used to be best known for its SixPak Plus multifunction card. Now it's a force to be reckoned with in all areas of connectivity, and reaching out into the vast corporate market. In this story, Jeff Spurrier explores AST's products and plans for the future in areas of Mac-to-PC, micro-to-mini, and micro-to-mainframe connectivity.

SPECIAL SECTION

61 Mac @ Work

Premiering a new quarterly section devoted to the Macintosh and its applications in the workplace. In this issue, we examine the enhancements to Microsoft's long-awaited *Word 3.0*, and look at *WriteNow*, a next-generation word processor from T/Maker. Also, Jean-Louis Gassee, Apple's VP of Product Development, speaks about the future of the Mac and its applications, some yet undreamed-of, and columnist Doug Clapp volunteers some opinions on the perfect word processor.

FEATURES

48 IBM Unveils Personal System/2

By Martha Conway

Confirming most of the prevalent rumors, Big Blue announced its new line of microcomputers, from 8086 to 80386 models, featuring enhanced graphics capability, sophisticated peripherals, a new (and still unreleased operating system, and — by IBM standards — attractive pricing.

80 MicroPro Promises New WordStar For CP/M

By Serge Timacheff

CP/M users rejoice — not only is MicroPro committed to releasing a *WordStar* update just for you, it's actively soliciting your input. Read All Here...

HANDS ON

82 Fontasy

By Lenny Bailes

This package lets owners of dot matrix printers produce quality output in varied formats, and enjoy at least some of the fruits of the desktop publishing revolution.

84 MacroPik'r

By Woody Liswood

So you've got to move data from *WordStar* to *dBASE*? *dBASE* to *Lotus*? The company mainframe to your desktop PC? And the formats are all incompatible? No problem...

94 TurboMax

By Jim Wolcott

If you'd like to give your old Mac the performance of its newer, faster brethren — especially if you need to do a lot of number-crunching — this board's for you.

COLUMNS

113 PC Systems

By Ken Milburn

Tips on how to optimize your system for attractive business graphics.

116 UNIX

By Bennett Falk

Job control, why it's an important element of UNIX systems, and some useful tools for achieving maximum efficiency.

120 Amiga/Commodore

By Matthew Leeds

Report from The Commodore Show — new products for the 64, 128 and Amiga.

122 Atari ST

By Helmi Kobler

Atari wasn't exhibiting at the West Coast Computer Show, but third-party developers made an impressive showing.

124 CP/M

By Robert D. Athey Jr.

Real scientific applications on CP/M machines.

128 Data Base Management

By Warren Sirota

Databasing on networks — how to avoid the pitfalls.

130 Telecommunications

By Brock N. Meeks

Big Brother may be watching your favorite online database. Soon he may want to keep you out of it.

DEPARTMENTS

8 But Jan Lewis Says...

On new standards being created by desktop publishing technology, plus reflections on the personal computer industry's evolution from garage enterprise to big business.

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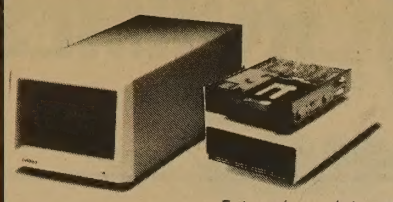
TAPE BACKUP



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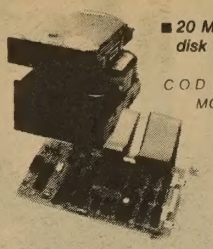

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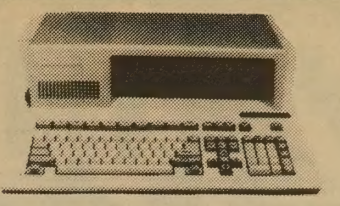

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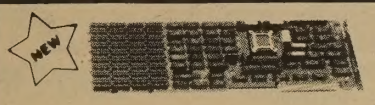

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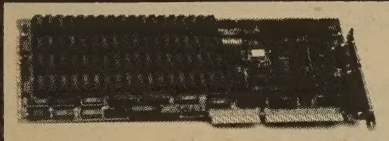

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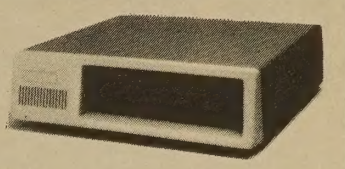

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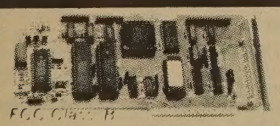

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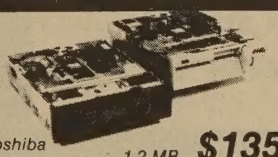

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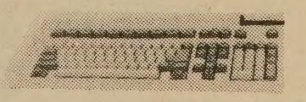

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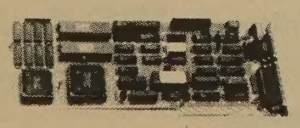

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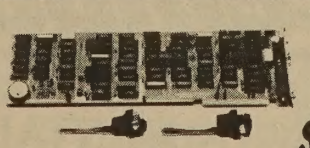

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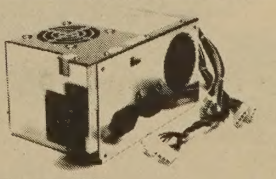

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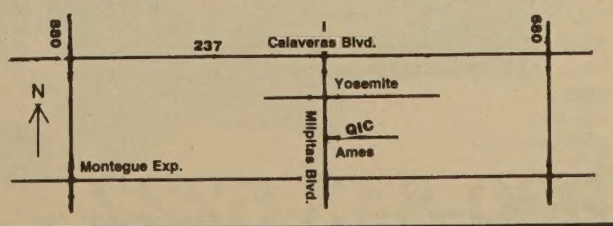

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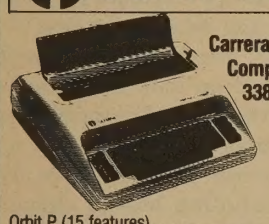

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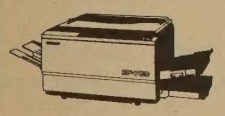

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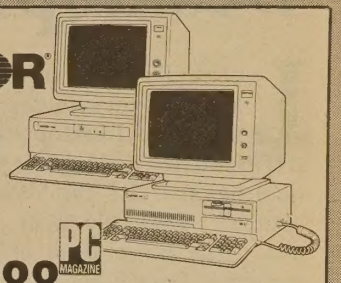

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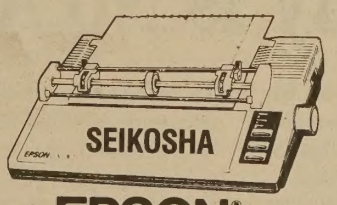

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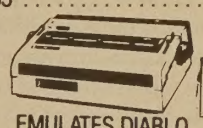

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BUT JAN LEWIS SAYS . . .

Desktop Publishing Creates New Standards

Leonard Tramiel of Atari is not alone in questioning the definition of Desktop Publishing (DTP). But the real issue is not "What qualifies as DTP?" but "What are the results?" Does the final copy rise above the noise level of everyday material? Does it get into the in-box or thrown out as junk mail? Does it get read and remembered? Does the reader respond? The real issue is effective communications, not checklists of features and fonts.

As DTP improves the appearance of the average document, what was once acceptable copy will look like a candidate for the round file. We have seen this progression before. Remember when a personalized typewritten letter was impressive? ("You may already be a winner, Ms. Occupant!") Letter-quality printers then became the rage because dot matrix shouted "Impersonal computer!" Now, of course, even letter-quality, right-justified text doesn't fool anybody. Today, when I get letter-quality mail, I think "Why didn't they use a laser printer?"

So the visual ante has been raised to 300-dots-per-inch laser fonts. But you don't need what Apple defines as "real" DTP to compete — even bad prose looks good with a 14-point Times Roman headline.

The low-end DTP products just deliver multifont, multiformat hardcopy, while high-end systems include such attractive features as kerning or hyphenation and justification. And as products like Interleaf move down the hardware stream, these features will be everywhere. But acceptable DTP will vary, from Atari's dual column ASCII to Springboard Publishing's DTP for the Apple II and *PageMaker* for Mac and DOS. Software products from $100 up will deliver a range of controls over text and graphics formerly approached only by sophisticated phototypesetting.

Atari is ready to ride this print quality craze, even without PostScript — all it needs is one big hit. What *VisiCalc* did for the Apple II, what *Lotus 1-2-3* did for the IBM PC, what *PageMaker* did for the Mac — one good DTP package could do for the Atari St. Atari needs to deliver the best DTP it can, for the lowest price to the largest number of users, to attract the third-party software packages and add-on products required to maintain the standard.

What VisiCalc did for the Apple II, what Lotus 1-2-3 did for the IBM PC, what PageMaker did for the Mac — one good DTP package could do for the Atari ST.

The Tramiels are geniuses at delivering more for the buck, but don't look to them for innovations in document handling or fonts. Their innovations are strictly found in the customer's bottom line. In the process, they squeeze everyone in the middle: suppliers, distributors, and third-party developers. (Look at the Commodore 64: three million sold by both computer specialty stores and mass merchants—many below cost.)

The fat files created by DTP will increase the need for more throughput, more memory, more storage, more screen resolution, more fonts, and more document controls. And the DTP standard could be substantially raised when products like Interleaf are available on vanilla PCs and 68000s. But if 300-dpi LaserJet output is the minimum, how long before megamanufacturers like Canon and Ricoh offer $600 laser printers?

As DTP approached phototypeset quality with mixed text and graphics, how will you get your 1200-dpi Product Plan noticed over everybody else's 1200-dpi Product Plan? Well, I have just the product for you — the "Sincerity" font! Make your written communication look like a real secretary slaved over a hot typewriter all day. "Sincerity" emulates a 1948 Smith-Corona Prestige Elite typewriter, including broken characters and wandering baseline. Options include little stick-on blobs of liquid paper for authenticity. Anybody with a PC can produce dual-column, balanced, right-justified text, but with "Sincerity" it looks like you really care! □

Serendipity Is No Accident

The year 1977 was a year for innovations, the most dramatic being the "prebuilt" computer kit. Now everyone could have a personal computer—no assembly required, no little packets of capacitors, no empty circuit boards to stuff. And CP/M (from a startup company with the ambitious name of Intergalactic Digital Research) provided a ready-to-go operating system. The first Computerland store, the Apple II, the Commodore PET, and the Tandy TRS80 only a decade ago? Seems more like a century.

In the middle of all this energy and insight was the First West Coast Computer Faire—a gathering of the "torn tee shirt" tribe of computer hobbyists and hackers. In 1977, the Apple II, with 48 Kbytes of RAM, cost nearly $5,000 in today's dollars. Since then, everything silicon has become cheaper and faster, with bigger capacity. More bang for the buck built many companies. Overnight millionaires —and overnight Chapter 11s—are all part of the past 10 years.

But today we see a dangerous turn toward intellectual and coporate protectionism. Hard to imagine how different the past 10 years would have been if Jobs and Wozniak had arrived with a closed box and an army of lawyers to protect the Apple "look and feel."

Looking over the industry scorecard, open and expandable products succeeded, while closed products fell behind. IBM failed with the closed 5100 (a desktop computer running APL and BASIC), but succeeded with the completely open IBM PC — much to the surprise of everyone! The networked Xerox STAR, closed by exclusive architecture, pioneered ideas but failed.

But the free flow of ideas at the Faire was encouraged for a very self-serving reason: When everyone shares, there is more for everyone. Only a year before the Faire, we had a chaotic nonindustry. But at the Faire, problems met solutions, and hackers met backers.

Today things are different. Intellectual barriers have been erected that could be as harmful as any tariff.

...before the Faire, we had a chaotic nonindustry. But at the Faire, problems met solutions, and hackers met backers.

In many ways we are still in what Leonard Tramiel called "4004 emulation mode": building the next more powerful engine, hoping that speed will hide the shortcomings of previous generations. Even Macintosh, GEM, and Windows interfaces are little changed from the original desktop metaphor developed by Xerox PARC in the early 1970s.

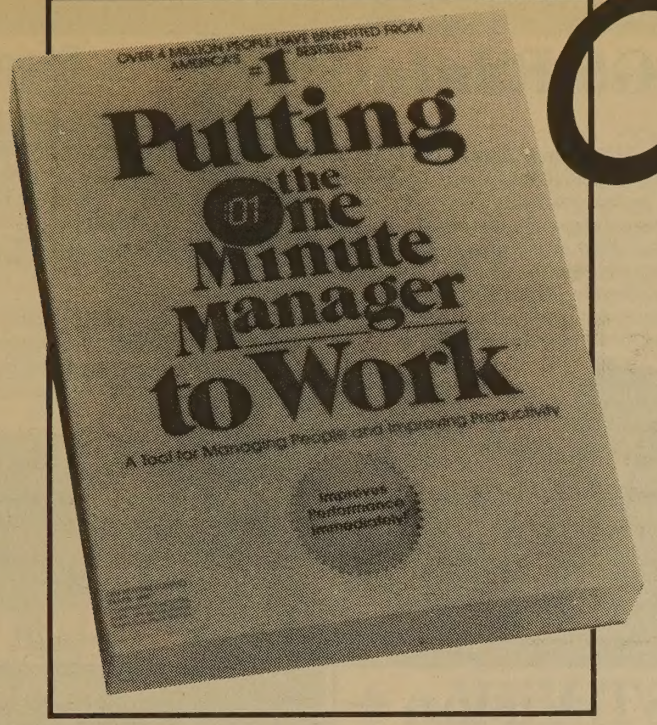
But linear thinking was evident even in 1977. TI and Commodore, the companies most feared, viewed the personal computer as nothing but a maxicalculator. Consequently, they extended calculator features like the keyboard to PCs and created jumbo calculators with no software that ultimately failed.

As the industry grew from garage to boardroom, risks became bigger, but fewer risks were taken. Today the industry plays it safe. The most recent "daring" deed: Compaq introduces a 386 machine without waiting for IBM.

We are losing another by-product of information freeflow: serendipity. Had there been an earlier microcomputer hobby show on the West Coast, Jim Warren probably wouldn't have bothered to set up his own. Apple picked the 6502 because it was the cheapest microprocessor on the market. *VisiCalc* developers got hold of an Apple before an Imsai, so Apple hit the stratosphere and Imsai faded. Events that can't be planned or put into a chart made millionaires—and brought the computer to millions.

Ten years ago, the industry was held back by the lack of a good operating system for the hardware. The CP/M (and others) came along and turned silicon into a system. The open and free market jumped in to develop applications that never occurred to the originators. Ten years later, the industry is again held back by the lack of a good operating system for the 286- and 386-based machines. And when it does come, it will probably come from IBM or Microsoft, not from some upstart startup like Intergalactic Digital Research. □

Jan Lewis is a well-known industry analyst and president of the Palo Alto Research Group, a consulting firm for the microcomputer industry. This article has been reprinted with permission from Computer Insider, *PARG's newsletter.*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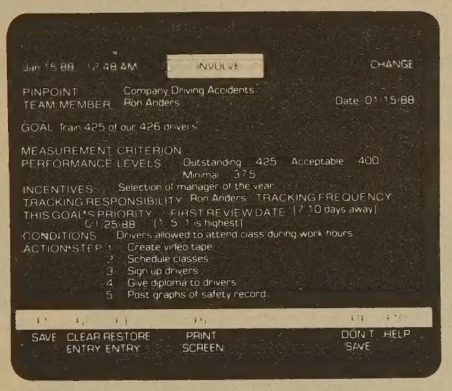
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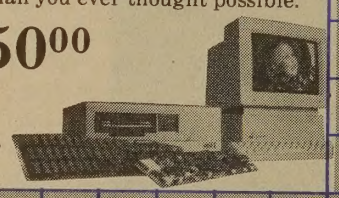

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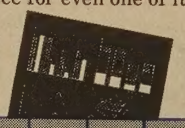

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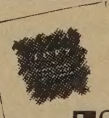

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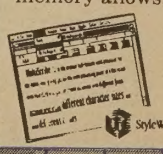

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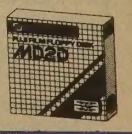

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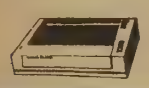

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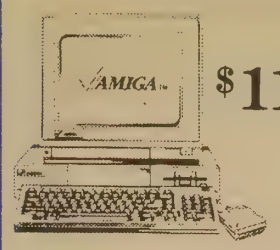

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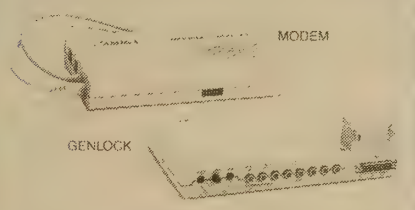

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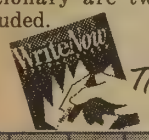

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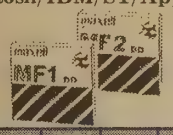

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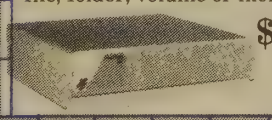

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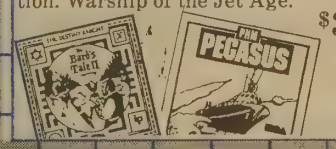

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CALENDAR OF EVENTS

Through June 1987 Little House Computer Classes. Many times and subjects available. Call (415) 326-2025 for information.

April 7-28 Desktop Publishing Class. Computer Arts Institute, Corte Madera. Call (415) 924-6955 for information.

April 18 Sacramento Computer Show. Cal Expo, Sacramento. Call Golden Gate Shows, (415) 388-8893 for information.

April 18 Computer Swap. Santa Clara County Fairgrounds, San Jose. Call Computer Swap, (408) 252-SWAP for information.

April 20-22 CD-ROM vs. Micrographics Conference. IGC Conference Center, Monterey. Call IGC, (617) 267-9425 for information.

April 25 Vallejo Computer Show. Solano County Fairgrounds. Call Golden Gate Shows, (415) 388-8893 for information.

April 25 Computer Swap. The Concourse, San Francisco. Call Computer Swap, (800) 252-SWAP for information.

April 26-29 Annual International LFT-Faire. Harvey's Lake Tahoe. Focus on UNIX computers. Call Gary Haslam, L/F Technologies, (702) 883-7611 for information.

May 2 "Computer Aided Investing." Class, San Francisco State University, Extended Education. Call (415) 469-1373 for more information.

May 2-3 Oakland Computer Expo. Oakland Coliseum. Call Golden Gate Shows, (415) 388-8893 for information.

May 4 Bourne Shell Programming. Class sponsored by Berkeley Decision/Systems. Call (408) 458-0500 for information and registration.

May 5 C Shell Programming. Class sponsored by Berkeley Decision/Systems. Call (408) 458-0500 for information and registration.

May 6 Essentials of System V System Administration. Class sponsored by Berkeley Decision/Systems. Call (408) 458-0500 for information and registration.

May 6 "Contacts, Connections and Cocktails: How To Work A Room." Lecture sponsored by Association for Women in Computing, Bay Area Chapter. Call (415) 655-3110 for information and registration.

May 7 UUCP Data Communications. Class sponsored by Berkeley Decision/Systems. Call (408) 458-0500 for information and registration.

May 7-9 Desktop Productivity Conference. Marriott Marquis Hotel, New York City. Sponsored by Fortune Magazine and the Seybold Group. Call (213) 320-9151 or (408) 297-0888 for information and registration.

May 9 San Francisco Computer Show. Pacific Center Expo Hall, 22 Fourth St., San Francisco. Call Golden Gate Shows, (415) 388-8893 for information.

May 14 Event Two: A Magical Evening. Sponsored by B/PAA (Business/Professional Advertising Association). RSVP by April 30. Call (408) 554-9187 for information.

May 14 Breakthrough Software Workshop. Know How, San Francisco. Call Breakthrough Software Corp. at (415) 898-1919 for information.

May 16 Marin Computer Show. San Rafael Civic Center. Call Golden Gate Shows, (415) 388-8893 for information.

May 20-22 Computer and Business Equipment Showcase. Anaheim Convention Center. Call The Interface Group, (714) 476-2300, (415) 364-4294 for information.

May 20-22 Interconnections '87. Conference sponsored by the Independent Computer Consultants Association. Call (800) 438-4222 for information and registration.

As a community service, MicroTimes lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month two months before the cover date of the issue in which you'd like it to appear (i.e. the deadline for the December issue , on the street in November, is October 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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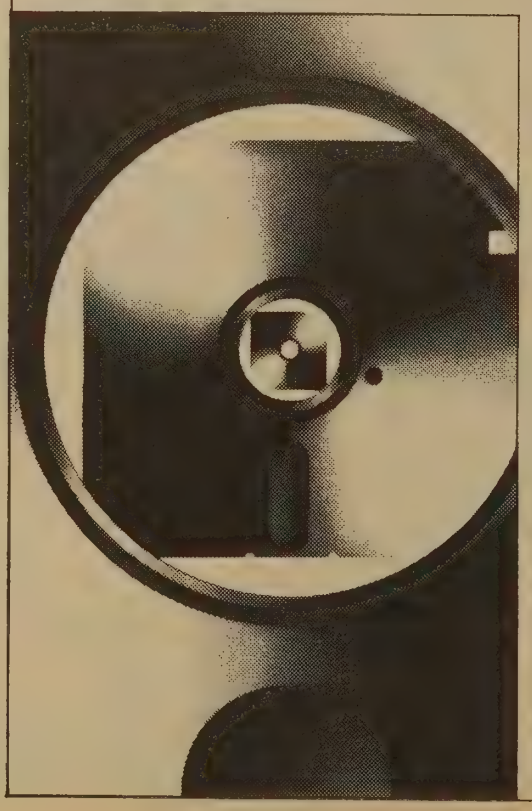

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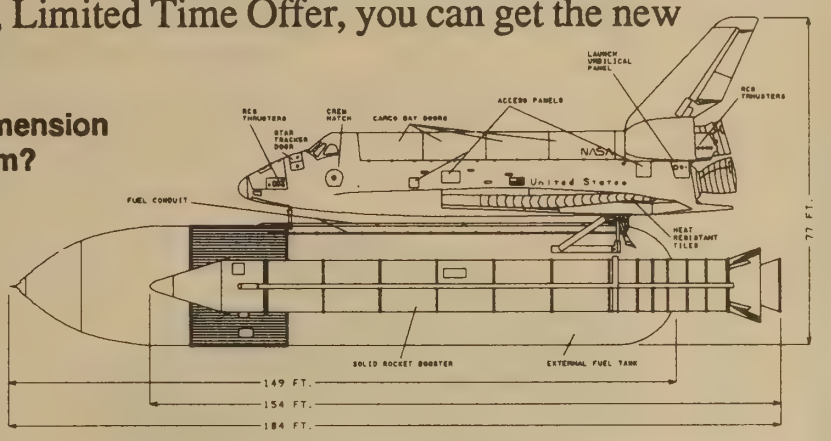

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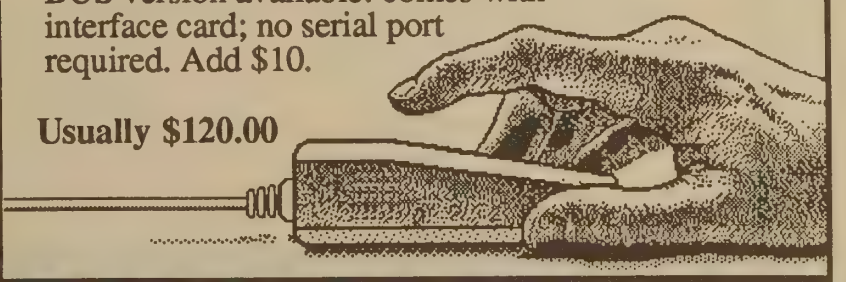

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On The Firing Line

The EGA Wonder

Beating The Problem Of Incompatible Graphics Standards

By Stephan Wickham and the Diamond Software Technical Team

These days there are quite a few graphic standards to choose from, each with its own unique signal, resolution and display adapter. Sometimes this can lead to disaster, with monitors inadvertently exchanged. Users have been known to hook a monochrome monitor onto the end of the IBM Color Graphics Adapter (CGA), which can quickly destroy the monitor.

The EGA Wonder, built in Canada by ATI Technologies, can work as a universal matchmaker. This card will connect to a TTL monochrome, composite monochrome, composite color, RGB color and enhanced color display. The card also emulates the Hercules Graphics Card (720 x 348) and 132 column.

Most EGA card manufacturers offer many of the same capabilities in their products. But only the EGA Wonder goes the extra distance by allowing signals meant to be displayed on one particular type of monitor to be used on another. This means the ATI EGA Wonder allows the upgrade to EGA *without* the purchase of an EGA monitor, and is downwardly compatible with CGA, MDA and Hercules.

The EGA Wonder is the only display adapter that can currently put EGA graphics on a CGA type display with full EGA resolution and color. This can allow you to use your current monitor instead of buying an expensive EGA monitor. It's not an optimal solution, but the quality of the resulting images is quite good. The matchmaker capabilities of the EGA Wonder are unparalleled by any other product—it gives you a choice of any popular display standard on any standard type of monitor.

On monochrome TTL monitors the text shows in its normal excellent resolution. However, the EGA Wonder can also display CGA, EGA or Hercules on the same monitor. Color images are shown by creating different shades of gray.

On composite monitors the EGA Wonder will show the text and high-resolution graphics available in its color modes, but in 64 shades of gray. All standard EGA modes are available on EGA displays. The EGA Wonder also double-scans CGA images sent to an EGA monitor, which increases on-screen quality. It will also display 132 column text on any display.

The EGA Wonder is a short five-inch-long card and uses the 8-bit data bus. This card should work fine in any IBM PC, XT, AT or compatible. In addition, the card should fit the reduced case height in the IBM XT 286. ATI Technologies designed the card around the Chips & Technology EGA chip set, with their own PROM and other engineering changes. The card has 256K of RAM, giving 64 color displays and smooth scrolling. On the back of the card are two RCA type composite video jacks, a DB-9 TTL type connector and rear mounted DIP switch. There are also connectors for a light pen and radio frequency modulator (RFM). Users could connect a modulator to the connector to display on standard home televisions.

ATI is the first company we are aware of that make use of the feature connector on top of the EGA type cards. At this moment ATI makes a Compaq module for $99; it plugs into the feature connector and displays EGA, CGA, Hercules or MDA on the internal monitor of the Compaq or IBM portable.

One problem we noticed with the EGA Wonder was with displaying EGA on a RGB monitor, which resulted in some screen flicker and a little lack of sharpness. Also, the aspect ratio is squeezed a little because the card takes a 350-line EGA display and maps it to the 400 line interlaced RGB display, leaving 50 lines on the screen blank.

In spite of these limitations, the EGA Wonder would make an excellent choice as a corporate standard product. It would provide PC Coordinators with a standard product which would work with most IBM type hardware. The product would also allow for quick on-the-fly monitor interchanges, requiring the users to merely flip two switches on the back. This $400 product comes very highly recommended.

Text-Based Management Systems

Many high-level users at research institutions and corporations throughout the country have been asking us for ways to organize large amounts of text into a database. This is a very common problem in law, research and engineering. The best solution is a combination of a word processor and database, resulting in a product called a text-based management system (TBMS). These programs offer full-screen editors, variable length fields and records and sometimes complicated retrieval features. Entry and query can be ad hoc.

A traditional data base system requires you to use a highly structured environment, with every field defined and typed. In addition, every record must be identical in length and content structure.

One of the most common problems is keeping track of two different items in one field. With a traditional data base you must store the two sets of information in two separate places. This can result in a huge amount of hard disk space being used if you don't always have the second field being used—the space is still allocated, empty or not. A text-based management system allows for the definition of fields with variable length that can grow dynamically. Some programs even allow for different components throughout the database records. This results in a very free-form structure.

These TBMSs should not be confused with text-retrieval programs such as *ZyIndex*. Text-retrieval systems organize existing documents and are not text databases in themselves. A TBMS, in contrast, has a means of data entry and typically retrieves data either with an index approach or by doing a full-text search. A number of TBMS systems also have report generators and math capability.

The best bargain around for TBMSs is Seaside Software's *AskSAM*. This program is flexible and powerful. It allows you to store records, queries, macros and command files. With *AskSAM* you can have a free-form or structured database. If you want field names, *AskSAM* will allow you to precede data with explicit labels. If you don't want to use a rigid structure, it will do without the labels and still give you quick response times.

With the free-form structure you can enter data anywhere within a record. Each record can have different types of information, and individual records can be labeled with field names or unlabeled. The only requirement for creating a database is entering the data. This is easy because nothing else is required. You don't need field name, field sizing or field typing—unless you want it. If you want more than one value per field—go right ahead, *AskSAM* will take care of your request. If you want one field in one record, but not in others, that's fine too—*AskSAM* is completely free-form. There is one limit of 20 lines per record, but you are able to link records together sequentially.

This $200 product is fast and easy to use and offers the features that most users are likely to need.

Question Of The Month

I am unable to access my hard disk. This happened suddenly, and before this the disk never gave me any trouble. What are the chances I can get my data back?

The first step will be to try and isolate the problem. Basically it can be in one of three areas. The first thing do would be to check the controller card by removing it and wiping the gold contacts softly with an eraser, such as on the end of a pencil. This will clean up any oxidation that might be causing electrical interference.

Try re-screwing the controller down. Many controller problems are related to having a missing or loose lock-down screw. If this doesn't fix the problem, swap the controller for one of a similar type. If the problem still exists, check the 20-pin and 34-pin cable connectors on the controller and hard disk ends. You might swap these cables if you have access to a second set.

If these steps don't work then you usually will have to take your drive in to have it serviced by a technician. There is a possibility that the circuit board on the top or bottom of the drive can be bad. If none of these things works there is a big chance that you crashed the hard disk and its data can't be recovered. Remember, this isn't the technician's fault. Also remember to minimize the consequence of hard disk failure by backing up your data on a regular basis to tapes or floppy diskettes.

These products and additional information are available at Diamond Software by calling (415) 633-2588.

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Promotion At Activision

Activision (Mountain View, CA) has named Bruce L. Davis as its President and COO, promoting him from his previous position as the VP of corporate development.

Aldus Promotes Compatibility And Contests

Aldus Corp. (Seattle, WA) has announced that its PC and Macintosh versions of *PageMaker* will now share 80 percent of their code, with identical features and mutual file compatibility. Aldus has also announced a new design contest, which will run through May 31st. The winner for each of six categories will receive a $250 gift certificate and a weekend package for two at any Hyatt Regency in the U.S. or Canada.

Fruits Of The Apple Harvest

Apple Computers, Inc. (Cupertino, CA) has announced net sales of over $660 million with a net income of over $58 million for the three months ending December 26, 1986. Not surprisingly, they also announced that the company remains debt-free.

Mac Goes DOS, With A Little Help From Friends

Apple Computer, Inc. along with several third-party vendors have announced MS-DOS capabilities for the Macintosh personal computer. AST Research , Inc. (Irvine, CA) has announced the first of two new coprocessor cards that provide IBM XT and AT capabilities for the Macintosh SE and Macintosh II. Dayna Communications (Salt Lake City, UT) has announced an MS-DOS disk drive together with file transfer software options for the new Mac systems. They are offering three kinds of compatibility products: connectivity offerings that let computers share data via network or other wired connection, media compatibility products that facilitate the exchange of MS-DOS data files with the Mac, and applications compatibility products that allow Mac computers to run MS-DOS software.

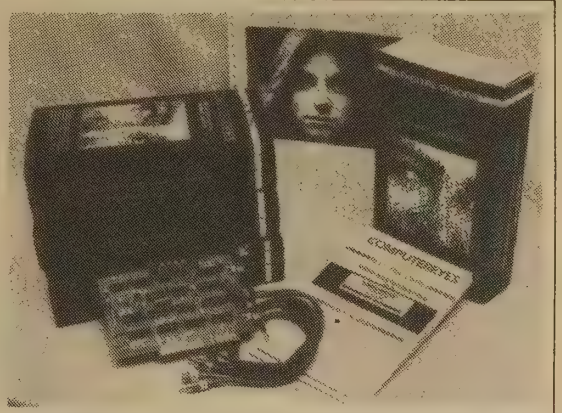
Apple's is offering a PC 5.25-inch external drive (360 K) and two interface cards (one for the Mac SE and one for the Mac II). It is also offering a software utility called *InterFile*, which performs two-way data transfer and transformation operations between MS-DOS and the Macintosh.

Dayna Communications announced its MS-DOS disk drive that will work not only with the new Macs, but also with the (now) entry-level Mac Plus. Called the DaynaFile, this product connects to the SCSI interface port and works without a separate interface card.

AST's two coprocessor cards are the Mac86 for the Mac SE and the Mac286 for the Mac II. They allow the Macs to run MS-DOS applications in a window on the Mac. These products were developed as part of a cooperative effort among AST, Apple and Phoenix Technologies Ltd. (Norwood, MA).

ADR Will Acquire SST's Relational Database Technology

Applied Data Research Inc. (Princeton, NJ) and Software Systems Technology have announced a licensing agreement under which ADR will acquire the software technology for SDB, SST's relational database management system for PCs, LANS, and minis.



Computereyes is a scanning device for IBM micros equipped with EGA or CGA cards.

Digital Vision Hooks Up IBMs To Video

Digital Vision (617/329-5400) has announced Computereyes for IBM micros equipped with EGA or CGA adapters. This is a slow-scan device that connects between any video source and the computer. Under software control, a b/w image appears in less than 12 seconds. ($249.95)

UNIX For Intel's 80386 Processor

AT&T (Basking Ridge, NJ) and Microsoft Corp. (Redmond, WA) have announced they will introduce a specific version of the UNIX System V operating system for Intel Corp's 80386 microprocessor. The product will incorporate Microsoft XENIX System V compatibility into AT&T's UNIX System V Release 3 for computers using the 80386 processor. It is expected to be available early in 1988.

Litigation In The Great White North

Autodesk (Sausalito, CA) has joined with other major software publishers in a copyright infringement lawsuit against the Softsave Preview Club of Vancouver, B.C. The case is being heard by the Supreme Court of British Columbia. Other plaintiffs include Activision, Ashton-Tate, Brøderbund, Infocom, Lifetree, Lotus, MicroPro and Microsoft.

RUMORS

■ Due out late in March is *PageMaker 2.0* for the Macintosh from Aldus Corporation (206/622-5500). By combining the engineers from both the Mac and IBM PC group, the new releases of *PageMaker* will share 80 percent of their code along with identical features and mutual file compatibility.

■ Watch for the new, low-end, 8088-2-based IBM PC to make its market entrance during early April of this year. Known as the IBM PC ET, this unit will mark Big Blue's re-entrance into the low-end market.

■ If you're a *Jazz* afficionado, the rumor is that its days are numbered. Especially in light of the fact that Lotus has announced a program called *Galaxy*, which was previewed at AppleWorld. Many feel the program is simply a *Jazz* re-write with expanded capabilities. *Galaxy* includes mainframe communication, worksheet, word processing and database modules.

■ Continuing on the Mac front is the rumored appearance of *Silver Surfer*, a new sophisticated database that can control the Apple LaserWriter.

Borland Software In The Classroom

Borland Int'l (Scotts Valley, CA) has signed an agreement with John Wiley & Sons, Inc. to develop and market a special line of textbooks that will enhance the learning and use of Borland software products in academic institutions. Entitled, *The Borland-Wiley Higher Education Series*, the new titles will be based on best-selling software products such as Borland's *Turbo Pascal*. They will be published by Wiley for educational markets in the U.S., Canada and Europe.

Print Shop Price Reduced

Brøderbund Software (San Rafael, CA) has announced a new $59.95 price for the Macintosh version of *Print Shop*. This is down from $79.95. The new price goes into effect immediately.

Control Data And Boeing Team Up For Space Program

Control Data Corp. and Boeing Electronics Company will design and develop a family of spacecraft computers for onboard sensor data processing. The cooperative agreement was recently announced at the Aerospace Engineering Conference.

Daniel Carter Moves On, Hyo-Bin Im Moves In

Cordata (Thousand Oaks, CA) has announced that Daniel R. Carter has, for personal reasons, resigned as the president and director of Cordata Technologies. Hyo-Bin Im is the company's new CEO.

John Douglas Named New President of Digital Communications

Digital Communications Association, Inc. (Alpharetta, GA) has named John Douglas as the president of the company. He was previously a design engineer for Honeywell, and the VP and general manager at Memorex's communications division.

New Enhancements for Quick-Gram

General Electric Information Services (Rockville, MD) has announced two enhancements to its *Quick-Gram* paper mail product, consisting of a Text Insert Message and Stored Text capabilities.

Formaster And Magnetic Designs Merge

Formaster Corp. (San Jose, CA) will merge with Magnetic Designs Holding Corporation (Redwood City, CA), with a majority approval from the shareholders of both companies.

IBM Raises Rental Rates, Some Prices

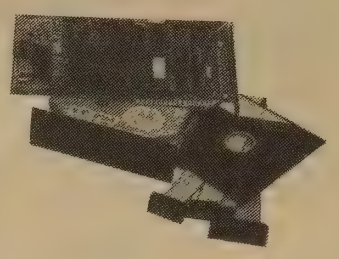
IBM (Rye Brook, NY) has announced increases for most of the company's equipment rental rates. Purchase prices for selected magnetic tape products and selected IBM Information Network prod-

SEAGATE HARD DISKS

FREE FORMATTING !!
FULL YEAR WARRANTY !!

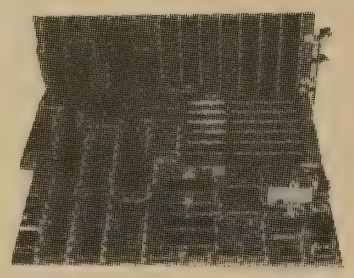
LOWEST RATE
WE SPECIALIZE EXCLUSIVELY
IN UPGRADING & REPAIRING
YOUR IBM PC/XT/AT
COMPAQ & OTHER COMPATIBLES

	REG	SALE
20MB TANDON ½HT *(3½" Good for portable)*	*$CALL*	*$CALL*
20MB SEAGATE ½HT 65 Ms ST225	$329	$279
30MB SEAGATE ½HT 65 Ms ST238	$349	$295
20MB SEAGATE FULL HT 40Ms ST4026	$579	$489
30MB SEAGATE FULL HT 40Ms ST4038	$595	$539
40MB SEAGATE FULL HT 40Ms ST4051	$749	$639
40MB SEAGATE ½HT 40Ms ST251	$749	$629
★80MB SEAGATE FULL HT 28Ms ST4096	$1095	$890
40MB FUJITSU ½HT 3½" 28Ms (Good for portable)	$749	$639
★140MB FUJITSU FULL HT 25Ms	$2095	$1695
60MB TAPE BACK UP KIT	$799	$599
Ext. Case with Built-In Power Supply	$99	$89
W.D., DTC Controllers for PC/XT/AT & Compatiable, etc.		*$SAVE*



Fast 8028710 for PC/XT CPU Speeds of 10MHZ **$299.95** Reg. 399.95

Our good prices get you to buy, but our service and technical expertise will keep you coming back !!!



	REG	SALE
VENTURA (XEROX) Desk Top Publisher	$795	$585
PARADISE EGA	$225	$185
PARADISE EGA Autoswitch 640x480	$399	$349
NEC Multisync Monitor 800x560	$650	$545
NEC EGA Board GB-1 W/DR HALO II	$399	$349
Hayes Compatible 1200 Baud Modem Made in USA, 5 years warranty	$149	$108
CASPER RGB Color Monitor	$365	$269
Quimax DM-14" AMBER Monitor	$169	$133
Logimouse Plus	$119	$79
Printer Cable 6'	$12	$7.95
Power Surge with 6 Outlets	$22	$9.95
Diskette Storage with Lock	$9	$4.95
PC DOS 3.1/3.2	$80/85	$69/75
MS DOS 3.2W/GW BASIC	$85	$69

64K, 256K CHIPS, 8087, 80287 CHIPS, Switch Boxes, Printers, Floppy Disk Drives, etc.
More! More! More!

★ *386* ★	REG	SALE
★386 M.B. 16MHZ SI = 18 +	$1995	$1795
286 MB MINI 6/10 MHZ 0K SI = 11.5	$599	$439
286 MB 6/10 MHZ 0K	$579	$425
TURBO XT MB 4.77/8 MHZ	$115	$89
Mono Graphic Board *With* Printer Port	$95	$65
DIO For PC/XT/AT	$95	$69
150W Power Supply UL & FCC	$75	$55
200W Power Supply UL & FCC	$95	$79
AT Multifunction Card	$155	$129
5060 Keyboard For PC/XT/AT	$79	$59
5339 Keyboard For PC/XT/AT	$129	$79
W.D. AT Floppy/Hard Drive Controller & Cables	$170	$159
W.D. RLL Controller & Cables	$139	$109
W.D. Fast Drive Controller & Cables For PC/XT	$139	$109

BEST PC SUPPLY
415/875-6888
1203 GRANDVIEW DRIVE
SO. SAN FRANCISCO, CA 94080
MON. - SAT.
9:30 - 6:00

Offer good until May 15, 1987 with this coupon

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laser cartridge rebuilding

Save as much as 50% off the price of a new cartridge.

We rebuild cartridges for the

APPLE LASERWRITER
HEWLETT-PACKARD LASER JET
and all laserprinters using a CANON engine.

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ucts will also be raised. Selected maintenance and licensed program charges will be increased as well. The affected rates and prices are being increased approximately 10 percent.

Jasmine Breaks On To Mac Scene

Jasmine Technologies (San Francisco, CA) has been inaugurated to develop and market peripheral products for the Macintosh computer. This new company employs 23 people and develops, manufactures and markets external SCSI hard disk drives.

Cordata Dealers Now Sell Lexisoft's Spellbinder Directly

Lexisoft, Inc. (Davis, CA) has announced an agreement with Cordata (Thousand Oaks, CA) wherein Cordata can sell *Spellbinder Desktop Publisher* Version 6.3 directly to its resellers for the Cordata LP-300X laser printer.

Patch Communications Launches MacWeek

Publisher Michael H. Tchong of Patch Communications will launch, on May 4th, a new magazine called *MacWeek*. This will be a weekly news tabloid for corporate managers and other multi-unit buyers of Mac computers.

Tokyo Company To Distribute Japanese Version Of GURU

Micro Data Base Systems Inc. (Lafayette, IN) the developer of GURU, and Knowledge Engineering Laboratory Corp. (KELC) of Tokyo, have entered into an agreement for KELC's exclusive distribution of GURU in Japanese.

Micro Market World And Computer + Software News Merge

The tabloid *Micro Market World* (Framingham, MA) has merged with *Computer + Software News*, whose parent company is Lebhar-Friedman. CW Communications will continue to hold a financial interest in *Micro Market World*.

Word Takes Advantage Of AppleShare

Microsoft Corp. (206/882-8080) has announced that the MS *Word Version 3.0* for the Mac will take full advantage of Apple's recently announced AppleShare network. This makes it the first word processor optimized for the Mac networking environment.

Newsnet Expands Online Information Service

Newsnet (Bryn Mawr, PA) has added *Telecommunications Week*, *New Era: Japan*, and *Morgan Report on Directory Publishing* to its online business newsletter information service.

Novell Enters Highly Competitive Mac Support Market

Novell (Orem, UT) is going head-to-head against 3Com in announcing its support for the Macintosh. They plan to introduce products under its Universal Network Architecture banner. Novell has also acquired Softcraft (Austin, TX), which developed Btrieve, a database management utility that allows applications to be written in a variety of languages.

The American Success Story:

Once upon a time, America led the world in innovation, quality, engineering, and manufacturing with names like Edison, Ford, and Bell...

Once Again America returns:

$755
Basic system

PRICE...QUALITY...PERFORMANCE

The CLUB 286 is manufactured and serviced only in the U.S.A.
As proof of their commitment to quality and performance, CLUB AT Inc. is offering same day shipping, integration of the most up-to-date Intel parts, and 48 hour burn-in.

"If Imitation is the sincerest form of flattery, the CLUB AT pays the IBM AT a heartfelt compliment. The only failing of the (CLUB AT) is that it imitates the IBM machine to accurately; ...and you can't beat that..."

Karl Koessel **PC World** December 1986

"The CLUB AT's Low Price and Blazing Speed..."

Joe Desposito **PC Magazine** October 28, 1986

Basic system 8 MHZ CPU with option A $1075

Basic system 10 MHZ CPU with option A $1125

Option A: 1.2MB Floppy Drive
WD HD/Floppy Controller

Features:

- **"MAXI switch keyboard/Pro" keyboard**
- 6/8/10 MHz, selectable with 8 MHz CPU
- 10 MHz option available
- 1MB of inboard memory (with 512K standard)
- 8 I/O expansion slots
- 195 watt power supply, 110V/220V switchable
- Fully compatible high speed AMI BIOS, (written in U.S.A.)
- Full documentation, operation manual with binder
- Full one year warranty

Dealers and Corporate inquiries are welcome

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CLUB-286

AUTO CAD
RUNS Xenix™
NOVELL NETWORK
MULTI TASKING

AMERICAN MADE QUALITY
IMMEDIATE DELIVERY

$755 Basic system

PROUDLY MADE IN THE U.S.A.
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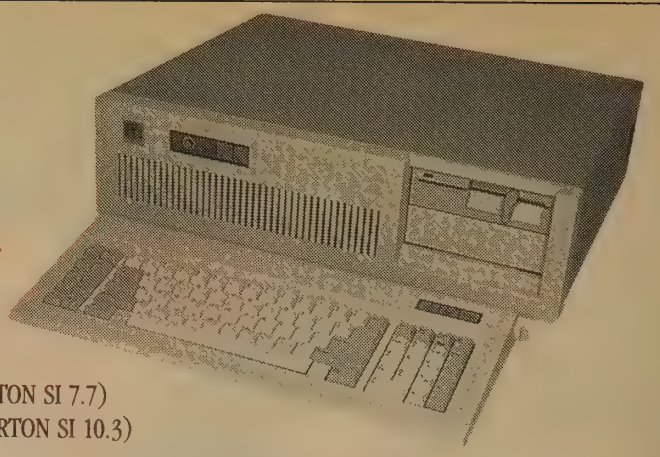
SERVICED IN U.S.A.
Extended Warranty Available



Option A: 1.2MB Floppy Drive
WD HD/Floppy Controller

Basic system 8 MHZ CPU with option A $1075 (NORTON SI 7.7)
Basic system 10 MHZ CPU with option A $1125 (NORTON SI 10.3)

* MAXI switch keyboard/Pro™ keyboard
* Free Set-Up utility
* 48 Hours Burn-in
* 195W Power Supply
* 33% faster than IBM AT
* 512K RAM, expands to 1 MB
* 6/8/10 MHZ, 8 MHZ CPU Chip
* Full 200 page documentation and Reference Manual
* Clock/Calendar with Battery Backup
* W.D. Hard Disk controller
* Fully Compatible High Speed AMI BIOS, written in U.S.A.

FREE
Fully configured and tested for your system requirements

- ☐ With 20MB Seagate 65MS 1/2 Ht. $355
- ☐ With 20MB Seagate 39MS Full Ht. $549
- ☐ DOS 3.1 $85
- ☐ 80287-8 8MHZ $225

Made in U.S.A.

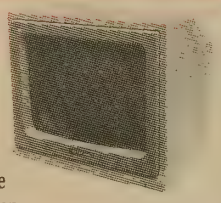
**** One Year Limited Warranty***
**** Dealers and Corporate qty. Discounts available***

CLUB 286 Mono system
* Basic system as described above plus Monochrome Display card and IBM quality Monochrome monitor **$1309**

CLUB 286 Color system
* High quality
* Basic System as above
* Plus color Display card and color monitor
* Fully Assembly and tested, no installation required **$1500**

CLUB 286 Color EGA system **$1740**

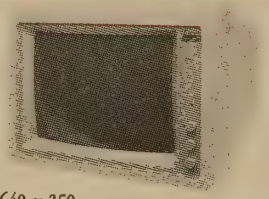
MONO MONITOR



* Nonglare
* 12" screen
* 800 x 350 resolution **$138**
* FCC class 'B' approval

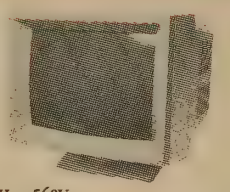
IBM Quality Color Monitor $345

EGA MONITOR



* 640 x 350
* 640 x 200 **$480**
* EGA and CGA
* FCC class 'B' approval

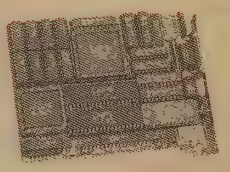
NEC MULTISYNC



* 800H x 560V
* Test Mode Switch
* No Installation required **CALL**
* EGA, PGA, CGA compatible

MICRO EGA

Club Micro EGA

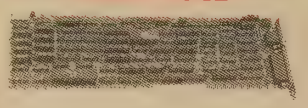


Made in U.S.A.

* External Switch
* 640 x 350 EGA
* 320 x 200 CGA
* 640 x 350 monochrome **$238**
* FCC class 'B' approval

UNIVERSAL DISPLAY

EVEREX EDGE



* Parallel Port **$248**
* 132 columns text, color or mono
* Mono Display Hercules Compatible
* FCC class 'B' approval
* One Year Limited Warranty

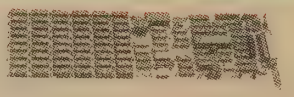
HERCULES COMPATIBLE

132 Columns

* Printer Port **$99**
* Software Switchable
* Monochrome Graphics
* Runs Lotus 123 Graphics
* Run 132 x 44 column display
* Comply with FCC class 'B'

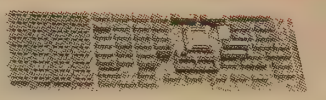
Made in U.S.A.

6-PAC COMPATIBLE



Club 384 (for PC)
* Serial Port **$88**
* Parallel Port
* 0-384K Memory
* Clock/Calendar
* FCC class 'B' approved
* Game Port and software

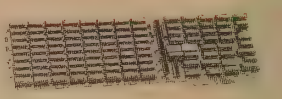
ACCELERATOR



* Accelerate Your PC/XT to AT Speed
* 80286 CPU **$399**
* w/128K RAM
* Runs 80287 math-processor in 5MHZ or 8MHZ speed
* Runs 7 times faster than PC or 33% faster than the IBM AT

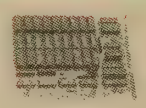
CLUB EMS

INTEL ABOVE-BOARD COMPATIBLE



* Works in PC/XT/AT **$109**
* 0-2MB Capacity
* Fits in LIM/SIM-EMS
* Expanded Memory Specs
* Made in U.S.A.
* Lotus Intel compatible

MEMORY CARD



Made in U.S.A.

Club 576 (for PC/XT, and Portable)
* Software **$55**
* Short Card
* 0-576K Memory
* Supports 64K/256K DRAM

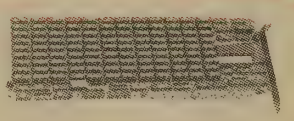
Made in U.S.A.

I/O FOR PC/XT/AT

* Software
* Parallel Port **$75**
* Half size card
* Real time clock/calendar
* Bracket for XT version only
* 2 Serial ports (2nd optional)

Made in U.S.A.

MEMORY CARD FOR AT

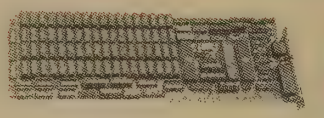


* No Piggy back **Club 3000**
* 0-3MB capacity **$155**
* 64K/156K RAM chips
* Supports split memory addressing
* One Year Limited Warranty
* FCC Class 'B' approval **CLUB 2500**

Made in U.S.A. **$138**

MULTIFUNCTION CARD FOR AT

Manager's Choice

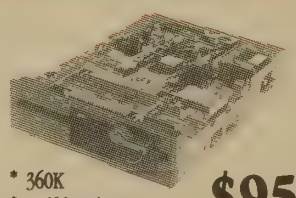


$179

* Game port
* 0-2MB memory
* Runs at 12 MHZ
* 128K Increment range
* 1 Serial port (2nd optional)
* Self Installing software

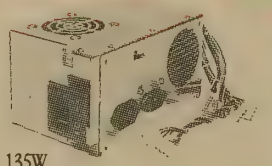
Club 2000
12MHZ AT-Multifunction
Made in U.S.A.

FLOPPY DISK DRIVE



* 360K
* Half height **$95**
* TEAC/FUJITSU
* Double density
* IBM grey color extra

XT POWER SUPPLY



* 135W
* Reliable **$83**
* Complies with FCC
* Direct replacement
* One Year Limited Warranty

AT power supply $120

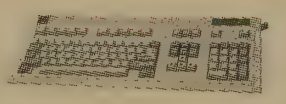
OPTICAL MOUSE

Microsoft Compatible
Run Microsoft windows

Optical Mouse Systems Mouse with DR. HALO
* 200 Dots/inch **$119**
* Work with Auto-Cad
* 3 Buttons/built in Microprocessor

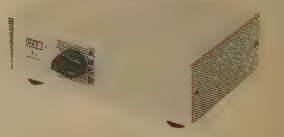
Mechanical Mouse $75

PRO KEYBOARD



Model no. 5151 **$88**
* Separate Numeric & Curser keypad
* AT Style Keyboard w/LED

SWITCH MASTER

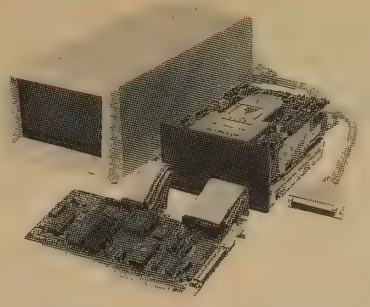


$88
* Cable included
* Share one printer by 4 computers or 1 computer to 4 printers

FAST HARD DISK FOR PC/XT AND COMPATIBLE

Upgrade Your PC/XT
Power Your XT

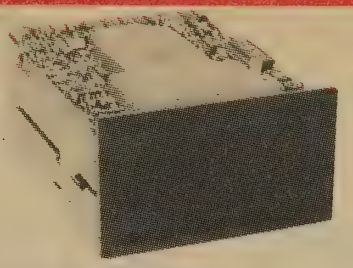
39 ms Access time



* Auto Head Park
* Boot from Hard disk
* Quality Seagate drive
* 39 ms average access time
* Software and Manual included
* Special Western Digital controller

	INTERNAL	EXTERNAL
☐ 20MB Hard Disk Subsystem Seagate 4026	$659	$759
☐ 30MB Hard Disk Subsystem Seagate 4038	$759	$859
☐ 40MB Hard Disk Subsystem Seagate (available now)	$859	$959

FAST HARD DISK DRIVE FOR AT



39 ms Access time

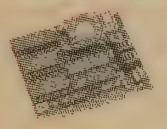
* 39 ms access time
* Auto Head Parking
* Linear Voice Coil Activator
* One Year Limited Warranty
* Cables, AT sliding rail and Software included

QUALITY & PRICE

20MB 4026	$528
30MB 4038	$599
40MB 251	$628
72MB (23 ms)	$1095
80MB 4096 (28 ms)	$1195

EVEREX MODEM—HAYES COMPATIBLE

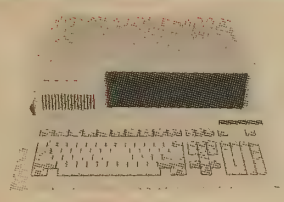
* Half size/Half power
* Excellent for Long Distance calls
* Free Bitcom Communication software
* One Year Limited Warranty
* Fully compatible with Hayes 1200 Baud Smartmodem
* FCC class 'B' approval



1200/2400 Baud	300/1200 Baud
EVERCOM 24 $229	$128

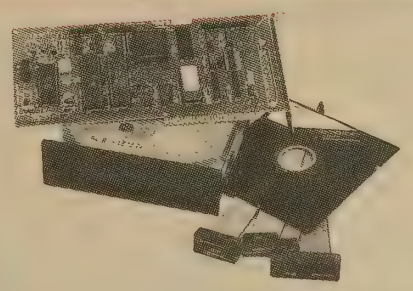
CLUB XT TURBO 4.77/8.0 MHZ

* 360K Floppy Drive
* 135W Power supply
* Electrical: 115V/220V
* 8088-2 CPU, 4.77/8.0 MHZ
* Legal Compatible BIOS
* Floppy Disk Controller
* 8087 Math Co-processor (option)
* Dimension: 17.5 x 19 x 6.1
* 640K Memory
* 90 day Warranty
* Quanity discounts available



$505

20/30 MB HARD DISK SUBSYSTEM



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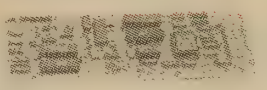
120 ns (9 pcs.) $12

256K DRAM

150 ns (9 pcs.) $27
120 ns (9 pcs.) $36
100 ns (9 pcs.) $45

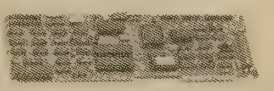
HD/FLOPPY CONTROLLER

FOR AT



$170

FOR PC/XT



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OTHERS

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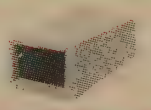

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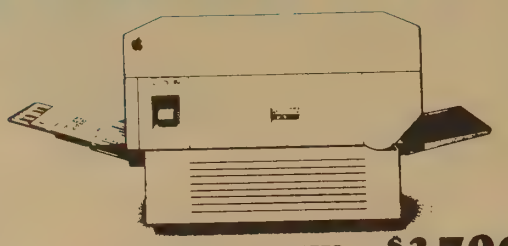

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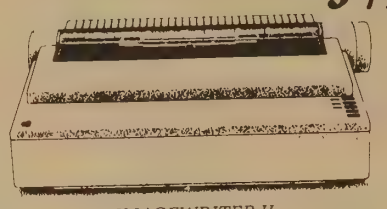

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Okidata Offers Free Print Drives For *Lotus 1-2-3* And *Symphony*

Okidata (Mt. Laurel, NJ) is now offering free Microline 292 and 293 printer drivers that reduce *Lotus 1-2-3* and *Symphony* graphics printing time. They also support underlining, superscripts and subscripts for *1-2-3 Report Writer.*

New Educational Version Of *VP Planner*

Paperback Software (Berkeley, CA) has an educational version of *VP Planner*, available from Holden-Day Inc. It consists of the software and accompanying text. The package is priced at $19.95.

Russell Weeks Joins Personal CAD Systems

Personal CAD Systems, Inc. (San Jose, CA) announced that Russell Weeks has joined the company as its new VP of marketing and as a corporate officer.

Samna/Sharp Agreement

Samna (Atlanta, GA) has entered into a joint agreement with Sharp Electronics Corp. to provide *Sharpwriter*, the word processing component of Sharp's new PC/Electronic Typewriter, the ZY-1000S.

ST Systems Awarded NASA Contracts

ST Systems Corp. (Lanham, MD) has been awarded two, five-year contracts totaling $12.6 million to provide systems support for two major NASA programs.

American Company Granted Japanese Patent

Tandon Corp. (Chatsworth, CA) will be awarded a Japanese patent covering its technology for the manufacture of double-sided flexible disk drives used for memory storage in microcomputers. The Japanese patent will be a counterpart of U.S. Patent #4,151,573, granted to Tandon in 1979 which Tandon has licensed to other disk drive manufacturers worldwide.

Toshiba Lowers Prices On Two Printer Models...

Toshiba America Inc. (Irvine, CA) has reduced the prices of its top-of-the-line 24-pin P351 and P351C Model 2 dot matrix printers. The Model 2 now costs $1,599, a $150 reduction, and the P351 Model 2 3-in-One printer is now priced at $1,399, down $200.

...And Its Portable PCs

Toshiba America Inc. (Irvine, CA) has reduced the price of its portable PCs, the T3100 and T1100 PLUS. The T3100 is now priced at $4,199, a $300 price reduction, and the T110 now costs $2,099 for the 640K version, down $300. The 256K model is being discontinued.

Tseng Labs Lowers Graphic Adapter Prices

Tseng Labs (Newton, PA) has reduced the prices on its EVA/480, EVA and the UltraPAK-Short graphics adapters. The EVA/480 is now $580, down from $680. The EVA is now priced at $399, and the UltraPAK-Short at $199.

Wyse Raises William Seymore To VP, Lowers Prices on PC

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- 5160XT/AT (click sound) $59
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- XT case $30
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Wyse Raises William Seymore To VP, Lowers Prices on PC

Wyse Technology (San Jose, CA) has lowered the price of its 40 MB WYSEPC 286 to $3,699 from $4,199. The company has also appointed William Seymoure to the position of vice president of business development.

NEW PRODUCTS

RECREATIONAL/EDUCATIONAL

Shanghai for the Apple IIGS

Activision (415/960-0410) has released its best-selling computer puzzle game, *Shanghai*, for the Apple IIGS computer. *Shanghai* is continually challenging but easy to learn. The game is made up of 144 tiles consisting of seven visually different suits, which are stacked in a five-level, dragon-shaped pyramid. Tiles must be removed in pairs until all have disappeared or no additional moves can be made. Each time a new game begins, the tiles are shuffled creating new challenges. ($44.95)

Gamestar Releases Football, Baseball Games

Gamestar, a subsidiary of Activision, (415/960-0410) has released *GFL Championship Football* for the following systems: Apple II series ($39.95), Atari ST ($44.95) , Amiga ($44.95) and MSDOS computers ($39.95). This program provides players with on-the-field perspectives and hard-hitting action. Additionally, Gamestar has released *Championship Baseball* for the Apple II family and for IBM micros and compatibles. This is a baseball simulation offering that makes you the team manager or a player for an entire season of big league action. ($39.95)

Electronic Arts And Lucasfilm Games Present PHM Pegasus

Electronic Arts (415/571-7171) and Lucasfilm Games have jointly released *PHM Pegasus*, a combat simulation game involving hydrofoil missile craft. PHM Pegasus puts the players in control of hydrofoils as they battle in the oceans with numerous enemy vessels in any of eight different combat assignments. For the Commodore 64/128 and Apple II family. ($29.95 and $34.95, respectively).

Marble Madness On The Apple II

Electronic Arts has also released a new Apple II version of its smash arcade hit, *Marble Madness*, which is based on the world famous coin-op classic from Atari. The Apple II version also offers an all new Secret Level which is as challenging to play as it is to find. ($34.95)

Epyx Brings Sub Battle Simulator To The Macintosh

Epyx (415/366-0606) has introduced *Sub Battle Simulator* for the Macintosh. The game was designed by Digital Illusions, Inc., the creators of *Orbiter*. The overall objective is to command a WW II submarine in either the Atlantic or the Pacific, complete the assigned mission, and return to home base. There are 24 American and 36 German missions to choose from and all are based on historical data.

Gessler Lets You Learn While You Play

Gessler Educational Software (212/673-3113) has introduced two new programs. The first is

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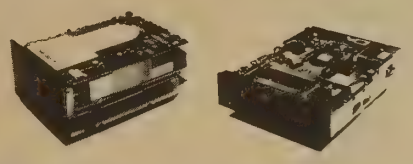

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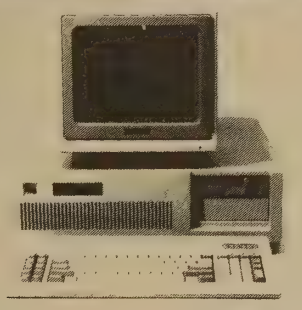

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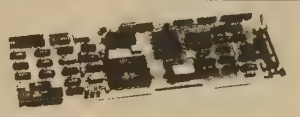

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Hard Disk Controller for AT Controls 2 HD and 2 FD **160**
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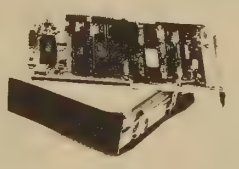

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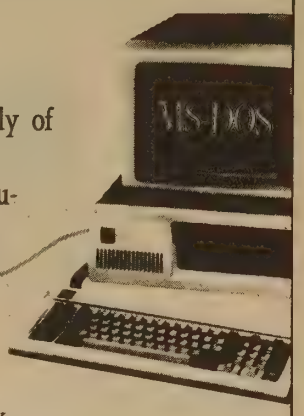

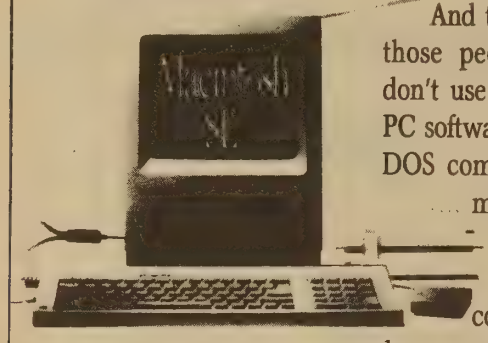

And this capability can even benefit those people in your company who don't use a Macintosh. Because with InBox PC software and an AppleTalk PC Card, your MS-DOS computers can send and receive mail and documents from other Macintosh and MS-DOS computers on the network.

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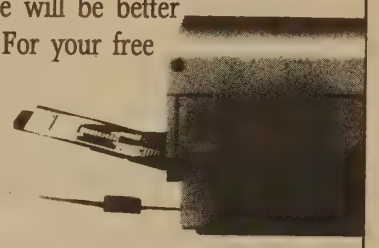

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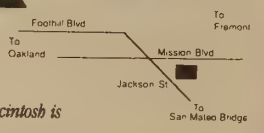

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Whodunit, which improves French, Spanish or German language skills while inviting the user to solve a mystery. The second is *MicroSCRABBLE*, which improves users' French language skills while playing a computer version of the popular board game. $49.95 and $39.95, respectively.

New Fantasy Adventure From Mindscape

Mindscape, Inc. (312/480-7667) has introduced *Shadowgate*, the third in the company's graphic adventures from Icom Simulations. In *Shadowgate*, you must survive the perils of Castle Shadowgate as you search for the Warlock Lord, a cunningly evil wizard. Expert gamers will appreciate the challenges of tough, clever puzzles. ($49.95)

Aspiring Writers Take Note

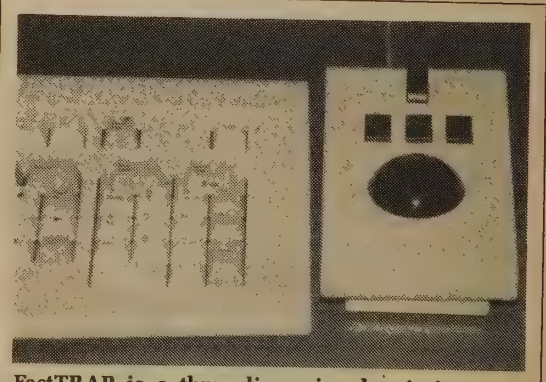
Scholastic Software Inc. (212/505-3000) has released *First Draft*, an outlining and writing software program for students in grades six and up. *First Draft* guides students through all stages of the writing process, from organizing ideas to printing finished essays, reports and stories. It is available for the Apple II family, the IBM and compatibles. ($69.96, home edition, $87.45 school edition).

Strategic Simulations Sinks Ships With Battle Cruiser

Strategic Simulations (415/964-1353) has introduced *Battlecruiser*, a new game for The Apple II, Commodore 64/128 and Atari 8-bit computer systems. The game, from Gary Grigsby, author of *Warship* and *Kampfgruppe*, features ship-to-ship tactical combat in the Atlantic theatre during WW I and WW II. During combat, the computer keeps track of every shell hit and calculates damage based on such factors as armor strength, location of hit, and penetration ability of each shell. ($59.95)

New Scenery Disk For Flight Simulator And Jet

Sublogic has also released Scenery Disk #7 for Microsoft's *Flight Simulator* or its own *JET* flight simulation programs. This disk covers the East Coast of the United States in detail, from Washington DC down through Key West. There are

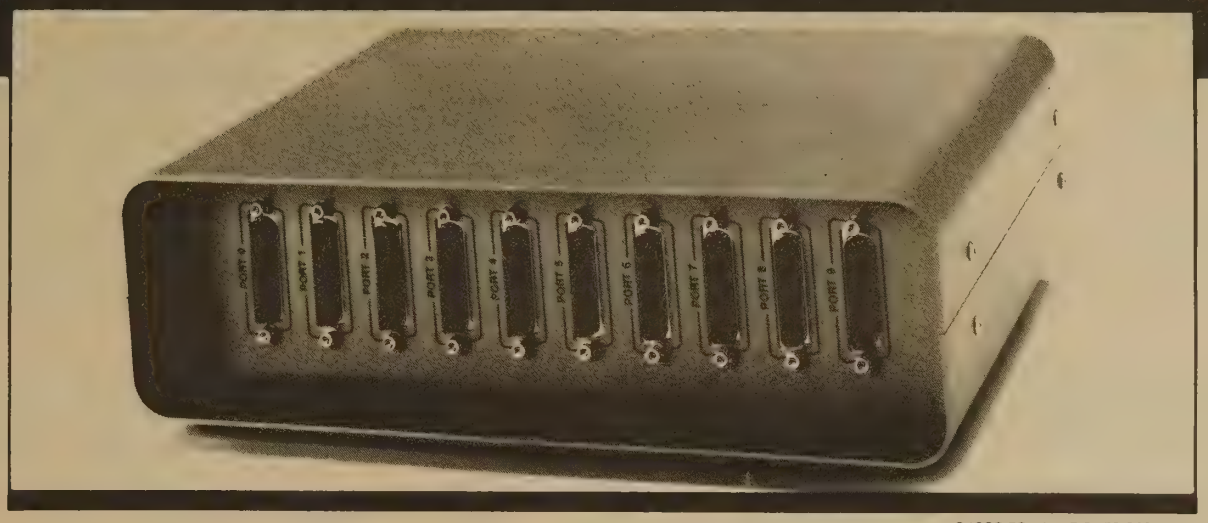


FastTRAP is a three-dimensional pointing device for IBMs and compatibles.

Point In Three Dimensions With FastTRAP

Microspeed, Inc. (408/748-8592) has announced FastTRAP, the first three-dimensional pointing device that allows IBM micro and compatible users to directly input X-Y-Z axis data into a variety of applications programs. FastTRAP combines the feel of a trackball, the low cost and input ease of a mouse and a third pointing axis with an ergonomic design. FastTRAP uses a trackball for the X and Y axes, and a fingerwheel for the third axis, Z. ($149)

PC PORT CONTROLLER



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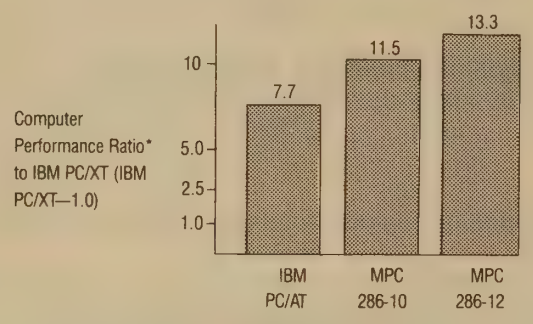
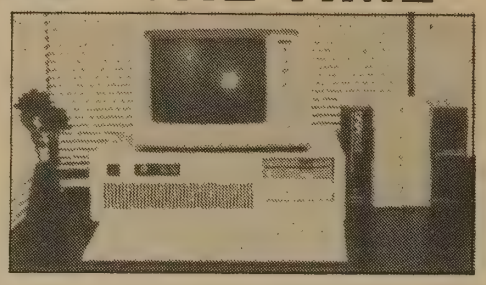
PC-TECH's MPC (Multi Purpose Computer) 286-10 6/10 Mhz AT Compatible with lots of horse power under the hood. The MPC-286-10 is powered by Intel's 80286-10 Processor with 0/1 wait state and a socket for 80287-10 Math Co-Processor, when compared to IBM AT or Compaq 286 the MPC-286 system generates your CAD drawing in half the time.



*Based on the Norton Utility SI-System Information Command

Option I/0 device. Most companies charge more for them. PC-TECH believes a CAD workstation needs at least 4 serial ports and 1 parallel port for printer, plotter, modem, and digitizer. So we designed 4 serial and 1 parallel ports on the CPU. MPC-286 CPU has only 36 chip against IBM's 131 chip, which generates less heat, greater reliability and years of trouble free performance.



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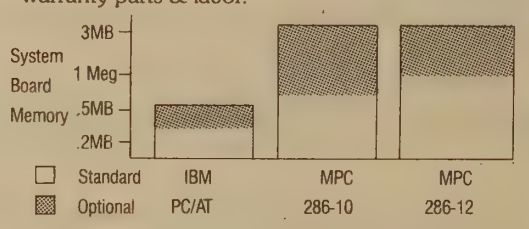
MPC-286 (Multi Purpose Computer) comes in three different models as turnkey CAD workstation. It's based on Autocad (The industry premiere CAD software) MPC-286 PRO, MPC-286 EGA, and MPC-286 Mono. Each station is based with MPC-286-10 AT Compatible computer, 80287 math chip. 4 serial, 1 parallel port, clock/calendar and 1024k on the CPU, a 1.2 mb floppy drive, 32 mb hard disk w/28 ms access time and 101 key keytronics keyboard w/12 function keys. One year warranty parts & labor.



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hundreds of miles of coastline, many rivers and roads, railroads, racetracks, and transmitter towers (some with blinking lights at night), and elevated bridges that now cast shadows. Scenery Disk #7 is available for IBM micros and compatibles. ($19.95)

ATARI

New Offerings From Antic

Antic Publishing, Inc. (415/957-0886) is now shipping the first in a new series of 3D clip art disks for *CAD-3D*. *The Future Design Disk* is much like a high-tech "erector set" of dimensional modules, including parts for starships, space stations, vehicles, and android robots. ($24.95) Another new offering is *G.I.S.T. - G.I. Sound Tool*, which provides programmers with an interrupt-driven sound driver to replace the original factory programming of the Atari ST sound chip. It provides nine ADSR waveform envelopes and nine Low Frequency Oscillators. ($34.95)

COMMODORE

Word Processing for the C64

Timeworks (312/948-9200) has introduced *Word Writer 3*, the most comprehensive, according to the company, C64 word processing system available today. New features include: an 85,000 word spelling checker, an integrated thesaurus, an integrated outline processor, an 80-column print preview mode, a highlighting feature, headers and footers, GEOS compatibility, Swiftkeys and automatic program set-up. ($49.95)

APPLE II

Create Awards And More With Award Maker Plus

Baudville (616/957-3036) has introduced *Award Maker Plus*, for the Apple II computer family, It is an easy to follow program for creating awards, certificates, licenses, coupons, or other documents of your own design. The program prints hundreds of pre-designed award styles, allows you to choose a text style, enter your own message, select the border style and color, and even enter your own hi-res picture. There are also gold embossed press-on seals. Updates to registered owners of previous versions are $12.50, with the retail price set at $39.95.

Electronic Arts Makes Popular Software Available For The IIGS

Electronic Arts (415/571-7171) will be releasing five of its popular software products for the Apple IIGS computer. *Music Construction Set* has already debuted as well as *DeluxePaint II*. *DeluxePrint*, *Instant Music* and *DeluxeMusic Construction Set* follow later this year. Seventeen of the company's other Apple II programs run on the IIGS.

IBM AND COMPATIBLES

Celebrate With Print Shop

Brøderbund Software (415/479-1700) has released *The Print Shop Graphics Library Holiday Edition* for IBM and clone users. This offering expands the graphic capabilities of *The Print Shop* by offering specially created designs for festive occasions. The edition contains 101 design elements and a reference card.

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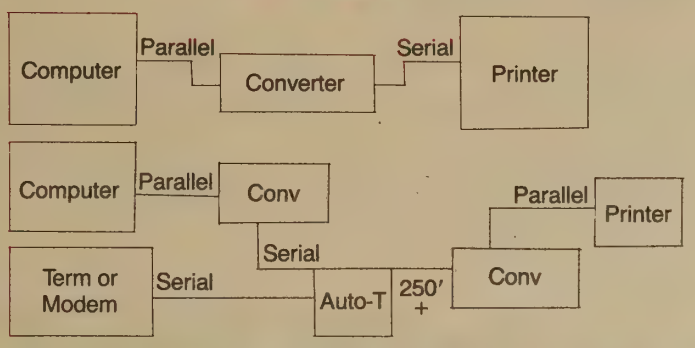

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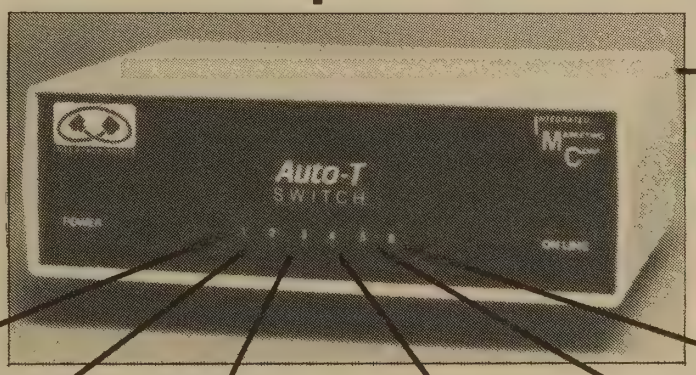

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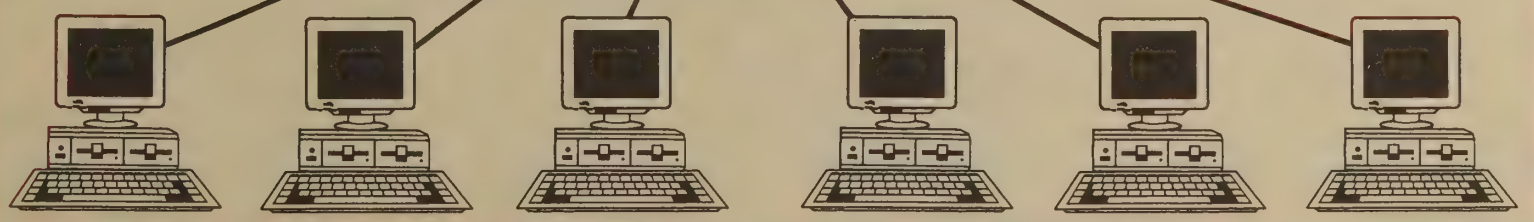

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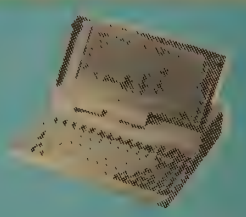

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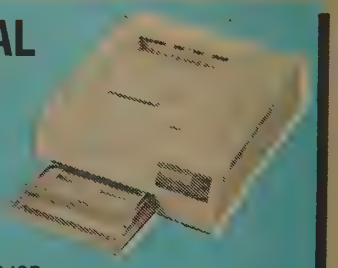

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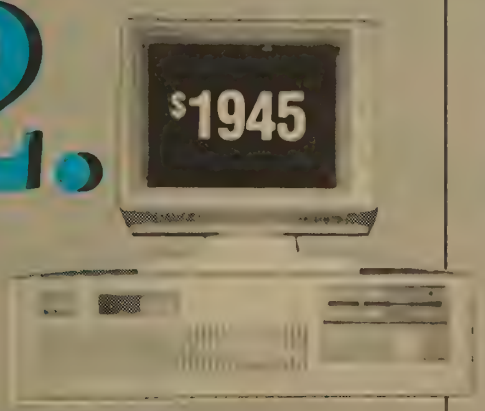

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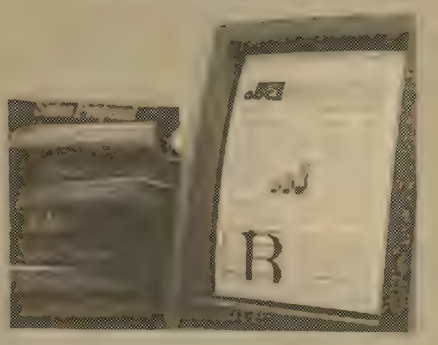

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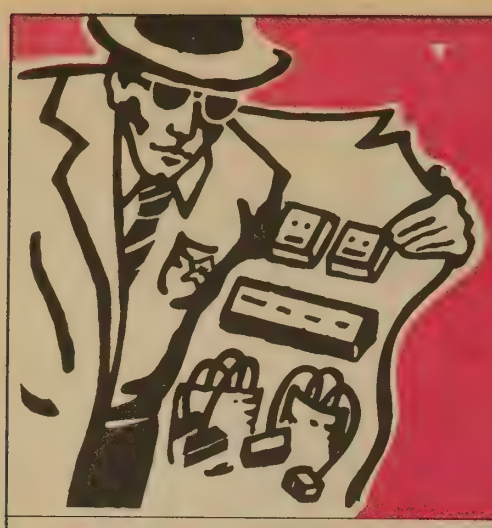

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- IBM AT serial port adapter cable allows use of standard RS232 cable with your AT. $7.95
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KGB Enterprises

NBI Word Processors To Work With Laser Printers

Brookridge Assoc. (302/998-4200) has introduced its NBI laser package which allows all NBI word processors to use laser printers from Hewlett-Packard, Xerox, Canon, Ricoh, NCR, Texas Instruments, ATI and QMS. Called The Emulazor, this offering can hook a word processor to a Xerox printer for only $8,158. The controller connects to the word processor using a Qume Sprint 3 card, phone jack or coaxial cable. Once connected, tripping the reset button puts the controller to work.

Multi-Lingual Word Processing With Ambassador

Gessler Educational Software (212/673-3113) has released Ambassador, a multi-lingual word processor that lets the user write in French, Spanish, German, English and Hungarian. The Ambassador features word processing capabilities such as full onscreen justification, pagination and printer selection. ($39.95 - also available for the C64/128, Macintosh and Apple II computers).

New Version OF R&R Relational Report Writer

Concentric Data Systems, Inc. (617/366-1122) has announced Version 2 of *R&R Relational Report Writer* for *dBASE*, which features Relational Merge. *R&R* allows users to create reports faster than programming with *dBASE* itself. The new Relational Merge feature lets users prepare form letters directly from related *dBASE* files. *R&R* can relate and report from up to 10 files at once. Free-form text and fields can be printed in any layout. New fields can be calculated using more than 70 predefined functions. More than 70 other user-suggested enhancements have been incorporated into the new version. ($149)

Digtalk Offers 'Goodies" For Smalltalk

Digitalk Inc. (213/645-1082) has introduced two optional Extension Kits to accompany its release of the Smalltalk programming language. The first Extension Kit integrates full EGA color capabilities into the Smalltalk/V environment, enhancing the system's already extensive bit-mapped graphics. The second kit, called "Goodies,"offers a number of new programming "kernels" that allow users to extend the Smalltalk environment to handle applications that require discrete event simulation, forward-chaining inference operations, or connection to external sensors and instrumentation. ($10 or via BIX or CompuServe).

Digital Researh Releases Concurrent DOS 386

Digital Research (408/649-0750) has released Concurrent DOS 386 which takes full advantage of key features of the Intel 80386 microprocessor. Concurrent DOS 386 is a significant enhancement to the multi-user, multi-tasking technology at the heart of the Concurrent DOS family. It remains compatible with Concurrent DOS, PC-DOS, MS-DOS, CP/M-86 and MP/M-86 applications. Available during the the second quarter of this year.

Manage Client Portfolios With New Software From Excalibur

Excalibur Sources, Inc. (404/956-8373) has introduced the *Exsell Portfolio Manager*, a software package that allows brokers and other financial professionals to easily monitor client portfolios. ($495)

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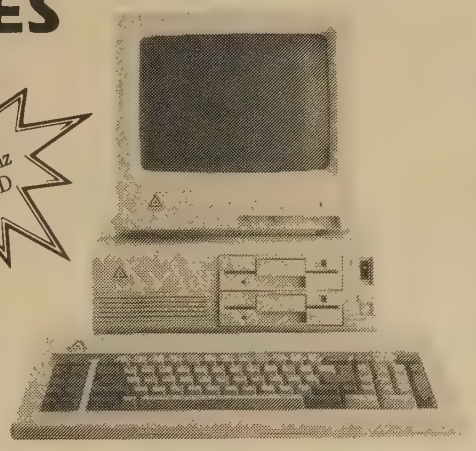

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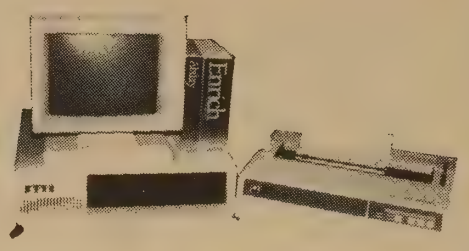

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News From IBM

IBM (Rye Brook, NY) has made several announcements. Two comprehensive SolutionPac offerings now allow customers to easily install and use complete office functions, from graphics to electronic mail, on IBM's most popular general purpose computers. They also announced that faster, denser computer chips, with efficient programming and a display with razor-sharp resolution have enhanced the RT's performance and usability. The RT now contains additional IBM technology including an IBM-developed 32-bit microprocessor, an IBM-invented program compiler, IBM-developed one megabit chip, and new high resolution megapel displays.

Index Ships 1.7 Version of Excelerator

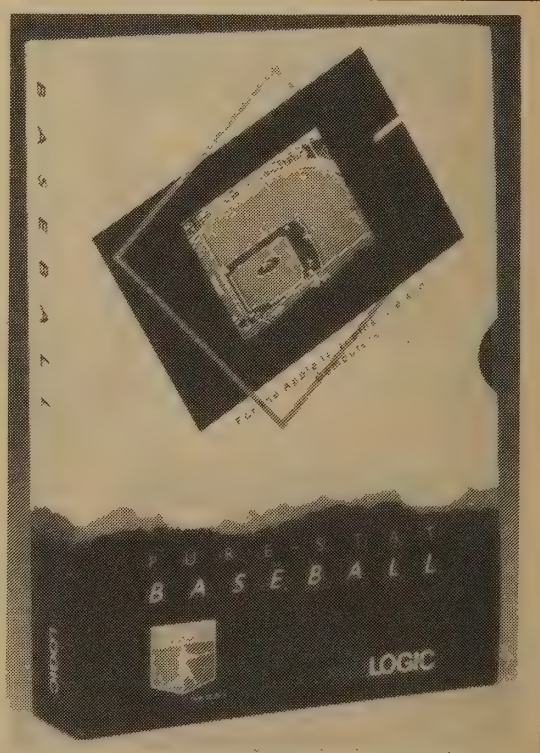
Index Technology Corp. (617/491-2100) has begun shipment of *Excelerator Version 1.7*, software for systems analysis and design. ($8,400)

CompareRite enhanced For More Word Processing Programs

Jurisoft, Inc. (617/864-6151) has enhanced its *CompareRite* document editing software program in order to support *WordStar 2000, MultiMate, Volkswriter* and *OfficeWriter* word processing programs. *CompareRite* enables word processing users to quickly and easily compare two drafts of a document for style and accuracy. Pricing ranges from $99.95 to $159.95, depending upon the number of word processors that are supported.

Lattice Makes Life Easier For C Programmers

Lattice (312/858-7950) has released its new *dBC III Plus* library of C functions which enable C



SubLOGIC's Baseball is now available for Apple II.

Sublogic Pitches Baseball

Sublogic Corp. (800/637-4983) has released *Baseball* for the Apple II computer family. This is a complete statistical baseball simulation for one or two players and considers each player's batting stats against both left- and right-handed pitchers and pitchers stats vs. left- and right-handed batters. Highly detailed animated graphics give you a perfect view of the playing field. ($49.95)

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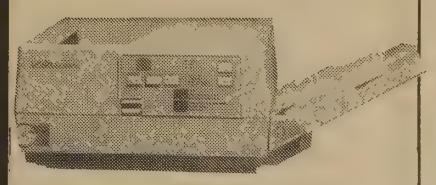

- Compact new laser printer delivers incredible high resolution output on all types of paper for crisp text and graphics
- Epson SelecType IV control panel allows instant access to eleven popular printer functions
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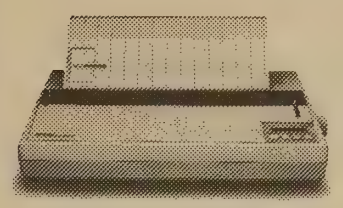

- 24-pin printhead for high resolution output
- Prints 324 characters per second in draft mode; 405 characters per second ultra-high speed mode; 108 characters per second Letter Quality mode
- Advanced Epson SelecType III LCD control panel prompts, confirms and stores print modes and font settings

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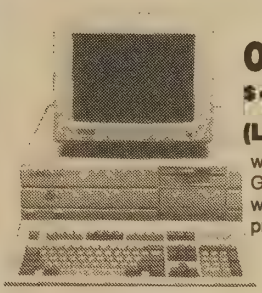

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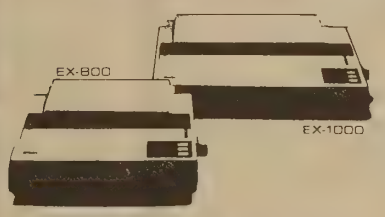

- Prints draft mode at a fast 300 characters per second, 60 characters per second in Near Letter Quality mode
- New Epson SelecType II feature lets you choose from eight different typestyles at the touch of a button
- Versatile paper handling with Automatic Sheet Load and Push Feed Tractor

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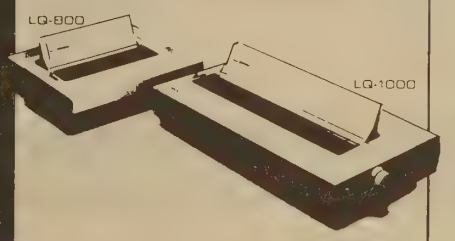
—PC Magazine November 11 1986

THE **EPSON** LQ-800 AND LQ-1000 DOT-MATRIX PRINTERS



- High resolution 24-pin printhead for outstanding letter quality output
- Prints 180 characters per second in draft mode, 60 characters per second Letter Quality mode
- One-touch fingertip selection of Letter Quality or draft print mode
- Built-in parallel and serial interface
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programmers to simultaneously create, access and update files that are compatible with Ashton-Tate's *dBASE III PLUS*. This offering provides an alternative to programming in the *dBASE III PLUS* interpretive language. ($750)

Lebaugh Soups Up LePrint

Lebaugh Software Corp. (800/532-2844) has introduced a major update of its *LePrint* software. Version 2.0 now offers integration of text and graphics, vertical and horizontal rules and boxes with or without shading. It is now compatible with more printers and word processing software. Foreign characters and two new type styles have also been added. $60 for owners of *LePrint*, $26 if you purchased *LePrint* after October 1, 1986.

Lexisoft Gives Spellbinder New Abilities

Lexisoft (916/758-3630) has now enabled desktop publishers to print a booklet quickly and easily using *Spellbinder Desktop Publisher's* new Quadplex printing capability. The program automatically lays out text in proper sequence for side by side or back to back printing. *Spellbinder* also includes Electric Webster, an expandable dictionary with hyphenation features.

Upgraded Word For Word From Master Soft

Master Soft (602/277-0900) has upgraded its *Word For Word*. Version 2.0 adds four new formats for file conversions and has improved support for the modules that were included in Version 1.0.

New Products From Media Cybernetics

Media Cybernetics (301/495-3305) has released Version 1.20 of *Halo DPE* (Desktop Publishing Editor) which can be used for preparing newsletters, flyers and documents of ten pages or less. New features include, text at any angle, larger icons for high resolution display modes, support for EGA 640 by 350 monochrome mode and more. The company has also introduced Image-Pro, a powerful image processing package which brings mini and mainframe capabilities to the IBM AT environment.

No Frills Desktop Publishing From Plummer

Plummer Research (415/324-8160) has announced *PAGEr* desktop publishing software. *PAGEr* was developed to eliminate the obstacles normally associated with PC-based desktop publishing. The software operates in true WYSIWYG manner, requires only a dot matrix printer, monochrome monitor, and 256K of memory. This is a no-frills approach to publishing. ($49.95)

Point Spread For Spread Sheets Allows Use Of Mouse, Light Pen Or Touch Screen

Point Technology (818/366-1234) has a new spreadsheet product named *Point Spread*. This software provides a customized interface between spreadsheet packages and a pointing device, such as a light pen, touch screen, or mouse. Point Spread saves time and increases the efficiency of *Lotus 1-2-3* and *VP-Planner* by converting multiple keystrokes into a single touch. ($95)

Easy Working Software From Spinnaker

Spinnaker Software Corp. (617/494-1200) has introduced the *Easy Working Software* series. The three new programs that have debuted under this

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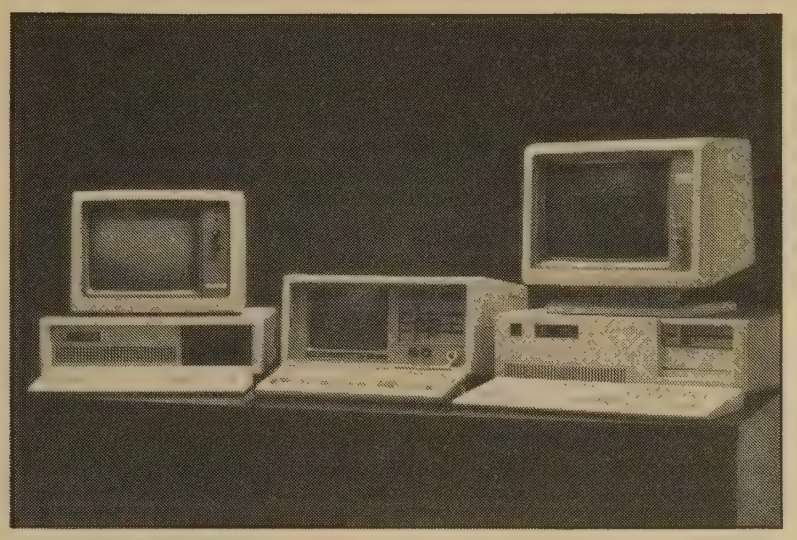

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Memory: 512 K Bytes of 32-Bit Interleved RAM; 32K Bytes of Phoenix BIOS ROM (Expandable up to 16MB RAM).
Mass Storage: 1.2 MB floppy disk drive; 32 MB Hard Disk with 28-ms access time (44.72, 120MB Optional).
Keyboard: 101-Key IBM RT-Style Keyboard with separate numeric keypad, cursor keys, and 12 function keys.

I/O Interfaces: RS-232C Serial port with male DB-25 Connector; Parallel Port with female DB-25 Connector.
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- 10 MHz 80286 system unit with zero wait state operation, runs popular IBM—compatible software 50% faster than the 8b MHz IBM PC AT for true productivity improvements, even for the most demanding user.
- Advanced coprocessor socket accepts 10MHz 80287 devices. When configured with coprocessor MPC/286 accelerates mathematics-intensive programs including Lotus 1-2-3 Release 2 applications, Autocad and Versacad.
- 640K RAM with parity checking up to 1024 K on board, 16MB w/expansion card.
- Keyboard-selectable operations at 10 or 6 MHz the ultimate in software compatibility
- Advanced architecture allows incorporation of four asynchronous serial communication ports and one parallel port standard on the motherboard. Only 36 chips on the CPU with the implementation of VLSI (Very large scale integration) technology.
- Eight expansion slots 2 = 8-bit/6 = 16-bit bus.
- Real time clock/calendar provides time and date stamp.
- High capacity 1.2 MB floppy drive standard. (360 Kb optional).
- Choice of 20, 30, 40, to 120 megabyte harddisk drive (optional).
- Optional internal tape unit for rapid back-up of full 20 to 60 megabyte of data on a single tape cartridge.
- Ergonomically designed, the 101 key, low profile keyboard features a separate numeric keypad, dedicated cursor control, and extra function keys.
- Compatible with wide variety of operating systems, such as PC-DOS, MS-DOS, XENIX, UNIX, Multilink advanced, and other versions of Concurrent Dos.
- Compatible with available multitasking and task switching software packages, including Microsoft Windows, Deskview and Topview.

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*12 MHz Optional

P-286-TARGA (Portable)

P-286 Targa is a powerful and versatile portable personal computer that combines Japanese quality, uncompromising capabilities and lightening speed. Reliably engineered, this system provides for exceptional versatility and upgradeability. P-286-TARGA is the smallest and the fastest portable AT compatible computer in the industry.
Processor: 80286-10 MHz (6/8/10). 0/1 Wait state
Memory: 640K of RAM up to 1024K (or 16 mb).
Mass Storage: 1.2 mb floppy disk drive. (360k drive optional).
20 mb hard disk, 40, 80 mb 30 ms. (optional)
20, 40 mb tape back up unit (optional).
I/0 Devices: 1 Serial RS-232 Port.
1 parallel Port.
I/0 Expansion: 4 Expansion slots open.
Monitor: 9″ Non glare High Resolution Monitor. Choice of Amber, Green or Paper white.
Documentation: Users manual. Dos 3.1. Setup Software.

$2495

PV-20 TARGA (Portable)

PV-20 TARGA gives 100% IBM compatibility in less than 28 lbs in a high powered rugged computer. Features an NEC-V20 fast processor giving you twice the speed of Compaq portable IBM XT or equal, 640K memory, 360k floppy drive, 9″ anti glare screen RGB. Serial, Parallel ports. Smaller than Compaq portable.

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XT-TURBO

The feature packed model is based on an Intel 8088-2 or NEC-V20 running at 4.77 or 8 MHz. The standard system has a 0/1 WAIT STATE on memory and operates 200% faster than IBM-XT. 640K RAM memory on board, 360 kb floppy drive, Eight expansion slots. AT style keyboard, 150 watts power supply, Clock/Calendar, Serial, Parallel & game port.

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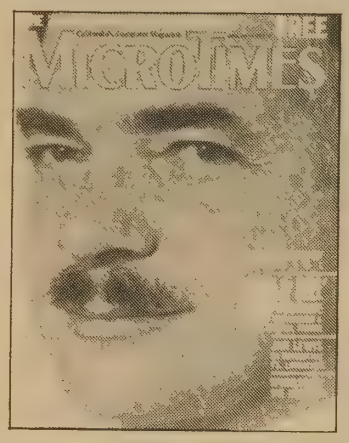
Lotus™ 1-2-3™

A Special Report On This Industry Standard



In The June Issue Of MicroTimes

CIRCULATION/DISTRIBUTION

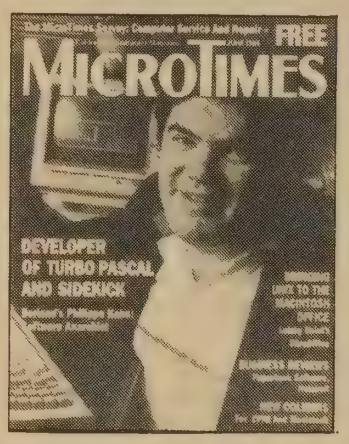
120,000 BPA Audited Circulation. Distributed FREE to California's Fortune 1,000 Companies and their User Groups, Computer Retail Outlets, Independent User Groups, Major Regional Trade Shows, Office Lobbies and Newsracks in California's Financial Districts.

EDITORIAL CONTENT

The June issue of MicroTimes will feature major editorial on Lotus Development's spreadsheet 1-2-3™ and its line of business software.

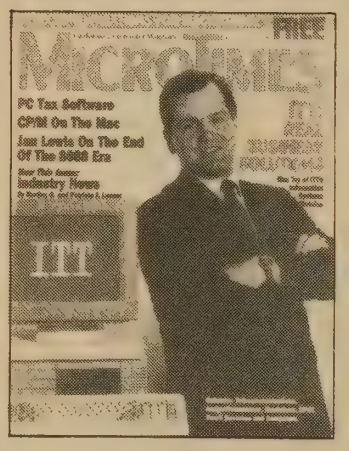
This targeted editorial will also focus on the role of third party developers who offer user enhancements, vertical market applications, and support services for the rapidly growing 1-2-3™ after market.

And we'll bring you an up to the minute report on Lotus' litigation concerning copyright infringement in the "Look and Feel" Debate.



ADVERTISING DEADLINE

April 29th, 1987



ON STREET

May, 1987

REACH THE BIGGEST COMPUTING MARKET IN THE COUNTRY: CALIFORNIA

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banner so far are, *The Writer*, *The Planner* and *The Filer*. *The Writer* is for first-time word processors and includes all of the standard editing functions as well as a spell checker. *The Filer* allows over 50,000 files to be stored as well as creating form letters. *The Planner* is an electronic spreadsheet and has extensive math calculations and onscreen help. All three programs can be integrated and are priced at only $9.95 each! Available for IBM micros, Apple II family and Commodore 64/128 systems.

New Features For Perspective

Three D Graphics (213/459-7949) has added new features to its 3-D package, *Perspective*. With release 1.2 you now can print out 2-D and 3-D graphs to a resolution limited only by your printer. Plus you can create a graph of any size in portrait or landscape format and place it anywhere on the page. You can also save or load picture data in the GEM .IMG format.

Ada Version Of Scribe Released

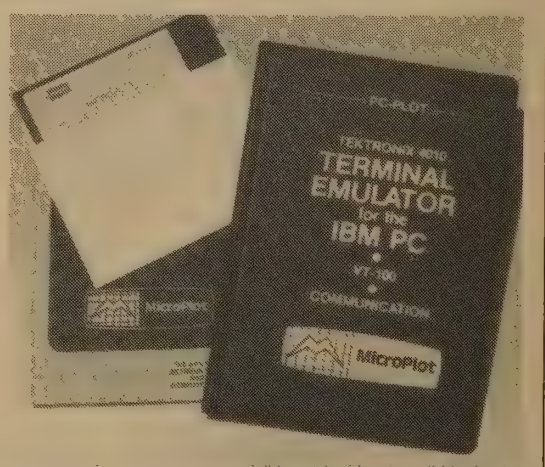
Unilogic, Ltd. (412/281-5959) has released the Ada version of its *Scribe Document Production System*. *Scribe* is easy-to-use formatting and document production software for laser printers. It is well-suited to the production of large documents such as manuals and proposals. The program supports over 50 printers and is available on a wide range of systems, including DEC VAX, IBM and Prime mainframes, Sun, Apollo, IBM and various UNIX stations.

Stock Exchange Simulation That Won't Crash

V Ware (602/323-7060) has released *Specialist, Version 2.0*, a package that simulates the actions of a New York Stock Exchange specialist. It is intended for anyone who invests in the stock market. This program reveals how the market specialists influence stock market prices. ($89.95)

Users Given A Free Hand With Publishers Paintbrush

Zsoft Corp. (404/980-1950) has introduced *Publisher's Paintbrush*, a freehand paint software package that features editing of images size 8 by 10 and larger. It also features RAM-resident for rapid scrolling, editing in "zoom" mode, three font technologies for enhanced headlining, captions and annotation. ($285)



PC Plot IV is a graphics terminal emulation package

Microplot Adds PC Plot IV To Its Product Line

Microplot (614/882-4786) has added to its product line *PC Plot IV*, a graphics terminal emulation software package that provides the user with script language and XMODEM file transfer capabilities. ($150)

What's Happening?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

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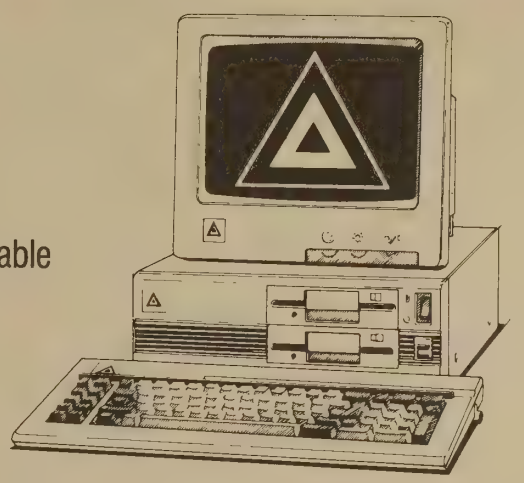

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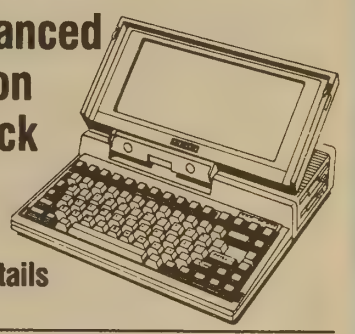

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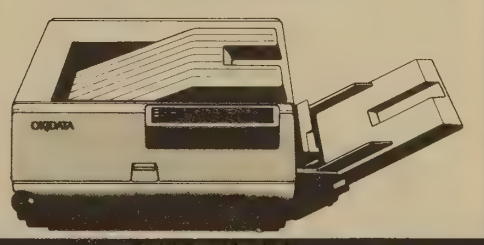

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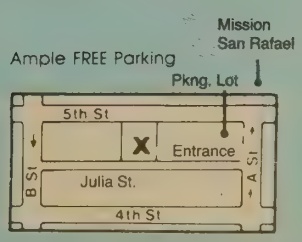

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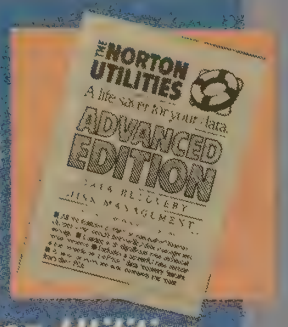

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Data Recovery Disk Management. All the utility, speed and ease-of-use we're famous for. Plus all the technical features you've been asking for. Loaded with new Technical Power, and enhanced version of the main Norton Utilities program and three brand-new specialized programs found only in the Advanced Edition. The Advanced Edition includes: SD Speed Disk, rearranges the physical structure of your hard disk; FR-Format Recover, recovers disk loss from reformatting a hard disk; new maintenance mode for badly damaged disks; Directory Editor; File Attributes Table Editor; Partition Table Editor.

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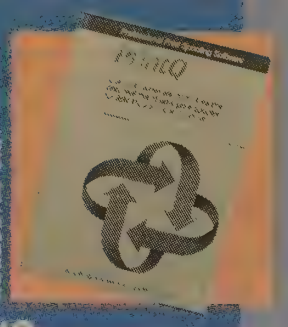

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SDI Software Directions, Inc.

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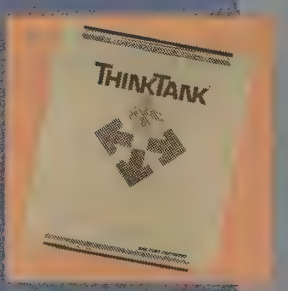

ThinkTank

The ultimate outline processor—from powerful ideas to dynamic business plans. ThinkTank is the first software program designed to process ideas. ThinkTank's flexible outline format lets you organize your thoughts, turn inspiration into strategic planning and transform marketing ideas into full-fledged proposals. Create an outline and watch your ideas take shape. You can use the "mark" and "gather" features to collect headlines and start a whole new outline and the "hoist" command to focus your attention to details. ThinkTank turns thoughts into reality. Ideas into written plans. Brainpower into business power.

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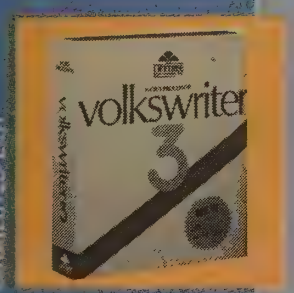

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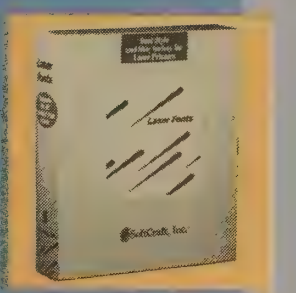

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WORLDWIDE COMPUTERS

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MACINTOSH

2&3D CAD From Advent

Advent (213/659-5157) has released *SpaceEdit*, a fully integrated 2 & 3D CAD software program for the Mac computer which will allow engineers & architects to design any object and then visualize it in perspective from any point of view ($625).

High Resolution Slides Now Possible From Mac Applications

Presentation Technologies Inc. (Sunnyvale, CA) has announced that Mac users can now employ its ImageMaker slide generator to create high resolution 35mm slides from a variety of Macintosh applications. The offering, which is based on a proprietary technology that allows for the highest possible (8,000-line) resolution, generates both text and graphic color slides for about 50 cents each. ($4,995)

Make A Note Of It With Memorandum

Target Software (1-800/MAC-LITE) has released *Memorandum* for the Macintosh. It is an electronic equivalent to 3-M Post-It notes. Notes can be electronically attached to spreadsheet cells, word processing documents, database records and graphics documents. ($99.95)

HARDWARE, ACCESSORIES & PERIPHERALS

ImagEnhancer Enhanced

Alps America (408/946-6000) has expanded the capabilities of its ImagEnhancer, a PC-based add-on board that allows users to produce plotter-like graphics on dot matrix printers. Support now includes Hewlett Packard HPG plotter commands. ($595)

AT&T Introduces Italian Made AT-Compatible PC

AT&T (408/522-5796) has introduced its AT&T PC 6310, an AT-compatible computer that uses Intel's 80286 processor. The PC 6310 is covered by AT&T's one year, on-site warranty, and is manufactured by Ing. C. Olivetti & C., S.p.A., of Italy. The PC 6310 is equipped with 512K of RAM and is expandable to 7 MB of RAM. The unit is available in 20, 40 and 68 MB hard disk versions with a 1.2 MB floppy disk drive. The PC 6310 also has space for a third drive and up to 80 MB of storage. Pricing ranges from $3,045 (Model 31) to $5,795 (Model 36).

CCT Ships New Line Of Concept Card

CCT (201/370-5000) has started shipments of its new line of Concept Card self-contained hard disk drives on a card. There are four models, all utilizing VLSI chip technology: 21, 32, 42 and 63 MB, priced at $599, $699, $1,499 and $1,699, respectively.

The Big Picture From E-Machines

E-Machines (609/866-1187) has introduced The Big Picture, a 17-inch display offering screen resolution of 1024 by 808 pixels. It is now available for the new and original Mac machines. The large rectangular (landscape) format allows nearly two complete 8 by 10 inch pages to be shown by most productivity programs. ($1,995).

Two New Releases From General Computer

General Computer (617/492-5500) has introduced HyperCharge 020 a processor-enhancement board for the new Mac SE computer. It allows the SE to run as fast as Apple's other new computer, the Mac II. The HyperCharge 020 features a 68020 microprocessor, 1 MB of RAM, and an optional 68881 floating point coprocessor. General Computer has also released HyperNet 2.0, the second release of its HyperNet file-serving software. HyperNet 2.0 fully supports Apple's MFS and HFS file systems and all leading hard disk drives for the Mac. It is also compatible with all leading AppleTalk applications and can coexist on an AppleTalk network with Apple's new AppleShare file server. Pricing is $1,499 and $299, respectively.

Kinetics Connects Mac SE To Ethernet Environments

Kinetics, Inc. (415/947-0998) has introduced EtherPort SE, an internal Ethernet controller board for the Apple SE computer. This is a direct connection from the SE into an Ethernet LAN environment and allows the SE to communicate with a diverse range of Ethernet-based computer systems. With EtherPort SE, a network of Mac computers can transparently execute existing AppleTalk-based programs with a bandwidth 40 times the size of standard AppleTalk. ($850)

Makes Your Mac A Mini

Levco (619/457-2011) has unveiled its Prodigy SE, a performance enhancement board for the Macintosh SE that plugs into the SE-BUS slot (internal

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expansion bus) and transforms the computer into a minicomputer-class workstation. This makes the SE capable of running Mac applications over 100 times faster. The board features a 16 MHz, 32-bit Motorola 68020, 1 MB of RAM, and a built-in non-volatile RAM disk. The SE board provides an internal expansion bus for connecting additional internal devices. Expansion capabilities include up to 8 MB of RAM, a Motorola 68881 and paged memory management with a Motorola 68851. ($2,000 for basic board).

Lowdown WORM

Lowdown (408/438-7400) has announced the first high capacity Write Once Read Many (WORM) optical laser disk for the Mac computer. The unit is available with 400 MB or 800 MB and connects to the SCSI bus. The removable optical media has a projected life of 10 years.

Quick Draw Metheus

Metheus Corporation (503/640-8000) was the winner of the First Annual Graphics Card Shootout held Jan. 29, 1987 in New York City. The Metheus 1000 Series Display Controllers have the fastest drawing speeds, and require only a single 8 bit slot in ay PC, XT, AT, 386 or compatible. Prices begin at $2,995 for the 4 bit-plane 1004.

MDIdeas Introduces SuperSonic Digitizer

MDIdeas, Inc. (415/573-0580) has a new product for the Apple IIGS. The SuperSonic Digitizer enables users to input audio directly into the power Ensoniq sound chip. Users can record, edit, and playback voices, music, and sound waveforms. This is an add on board to the MDIdeas SuperSonic stereo card and gives the user functions of an additional card without using an additional port. ($39.95).

Large Screen Capability For The New Mac SE

Micrographic Images (818/407-0571) has announced MegaScreen SE and MegaScreen SE*M, which offer large screen capability for the new single-slotted Mac SE computer. The new products support several large-screen high-res displays in both vertical and horizontal formats. Both products are base-priced at $1,995 and are bundled with a 19.5-inch monitor with 1,024 by 900 resolution.

New Color Monitor From Mitsubishi

Mitsubishi Electronics America, Inc. (213/515-3993) has a multi-application color monitor that is fully compatible with the IBM MDA/CGA/EGA/PGC and Monochrome Hercules graphics boards. The Diamond Scan monitor has unique scanning circuitry allowing for a resolution of up to 800 x 560. It sells for $889.

Desktop Engineering Applications For The New Macs

National Instuments (512/250-9119) has announced a family of plug-in cards for the Mac II and Mac SE computers. They enable desktop engineering applications in laboratory automation, process monitoring and control, electronic test and measurement, analytical chemistry, production control, factory automation, energy management and life science research. For the Mac II computer, the cards perform functions such as IEEE-488 instrument control. The cards are offered with high-level language support as well a LabVIEW support. Pricing starts at $395.

Memory Expansion For The Mac From National Semiconductor

National Semiconducter (408/721-5000) has announced a 16 MB memory expansion module for the Mac II. The module uses 1 megabit DRAMs and consist of an eight MB motherboard and an eight MB daughter board. When installed as a mother/daughter combination, the module will occupy a single card slot. The board is designed to provide full 32 bit native mode addressing, and will provide for memory capacities up to a four gigabyte allowable maximum. Twenty-four bit address mode is also supported and a RAM disk simulator and print spooler will also be included.

Printer With Internal Networking Capabilities

Output Technology Corporation (509/926-3855) has announced the TriMatrix 850 PrintNet, the latest in the company's series of 850 cps printers. This is the first dot matrix printer to feature built-in networking capabilities. As many as five networking users can connect directly to the unit through resident serial ports. ($2,995)

TurboTouch 1910 Has The Personal Touch

Personal Touch Corp. (408/246-8822) has introduced TurboTouch 1910, a 19-inch, color, touch screen monitor for VARs, OEMs, and System Integrators. The monitor accepts RGB and NTSC signals and is compatible with IBM and most other PCs. The monitor is a Sony Trinitron 1910. It has a resolution of 350 TV lines and 640 by 240 pixels. The integral touch screen has a resolution of 256 by 256 and can be interfaced to the RS232 serial port or the analog, game port.

New Products For The Mac SE From Radius

Radius, Inc. (408/732-1010) has announced the Radius Performance Accelerator and the Radius Full Page Display for the Mac's new SE computer. The Radius Accelerator, priced at $995, is a 68020 accelerator board that provides three to four times the speed of the standalone Mac SE. The Full Page Display, at $1,1995, is a 15-inch screen for full 8½ by 11-inch document preparation.

Digitizing Tablets And Tables From Seiko

Seiko Instruments USA Inc. (408/943-9100) has introduced an eight-member family of digitizing tablets and tables. They range from an 8 by 12 inch desktop tablet to a 42 by 60-inch floor-mounted table, featuring 1000-lines-per-inch resolution and accuracy as high as 0.005-inches. The Seiko Screenplay tablets are desktop units that typically function as data input devices attached to PCs or terminals and are most suited for CAD work. The tabletop or floor-mounted units are for communication directly with mainframes.

LaserView Display System For Mac SE and Mac II

Sigma Designs (415/770-0100) has introduced its high resolution LaserView Display System in two new configurations to support the Mac SE and Mac II computers. LaserView has a display of 1,664 by 1,200 lines. LaserView consists of a high resolution adapter board and a choice of a 15- or 19-inch monitor. Both are landscape mounted and have paper-white phosphor screens.

STB Offers Memory Expansion For AT Computers

STB Systems (214/234-8750) has added the Grand Byte Plus multifunction board to its current line of AT compatible products. This 16-bit board provides memory expansion up to 2.5 MB on one board through the addition of 64K or 256K chips. For I/O needs, the board provides a standard parallel printer port and an AT style 9-pin connector serial port. ($319 for zero memory, $1,495 for 2.5 MB)

Whisper Sound Enclosures For Printers

Sun-Flex Company, Inc. (415/883-1221) has introduced acoustic enclosures for printers. The Sun-Flex Classic Series Whisper Sound Enclosures cost $350 to $565 and are available in models for most popular printers. They feature an illuminated front-mounted switch control to power to a whisper-quiet fan and an internal AC power outlet for the printer. Rear and bottom feed slots accommodate most printers.

Ultra-High Resolution And Larger Viewing Area For the Mac II

SuperMac Technology (415/964-8884) has announced two ultra-high resolution graphics controller boards for the new Mac II computer. The color Spectrum and black and white Grafix boards work with the company's new 15- and 19-inch high resolution graphics monitors, as well as any standard analog or TTL monitor. They offer more than four times the viewing area of the original Macintosh. The Spectrum can be minimally configured for 16 fixed colors with 256K RAM and no color chip, or a user-selectable 256 colors from a 16.8 million color palette, using an 8-bit color chip and 768K RAM. Both Spectrum and Grafix can be used simultaneously to drive two monitors.

Tatung's Enhanced Color Graphic Adaptors

Tatung Company Of America (213/979-7055) has a new idea in enhanced color graphics adapters. The Supreme EGA board runs all EGA, CGA, MDA, Hercules software and 132-Column text display. The board can perform these functions with any IBM compatible EGA, CGA, monochrome, TTL, or composite monitor and sells for $399. This is a reverse concept compared to the multi-sync monitors.

Toshiba Enhances P351C Printer

Toshiba America (714/730-5000) has introduced the P351C Model 2, an enhanced model of its three-in-one printer. The Model 2 is a 24-pin dot matrix unit capable of color text and graphics. A new LED front panel and repositioning of the dip switches make the printer easier to operate.

A New "Supertwist" On Toshiba's Portable Computer

Toshiba America (714/583-3000) has announced that its T1100 PLUS portable PC is now available with "supertwist" liquid crystal display. This allows more light to pass through the display and bounce back, creating darker characters and improved screen contrast. The price is $1,999 for the 256K unit, and $2,399 for the 640K unit.

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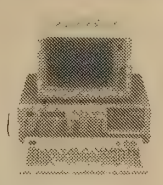

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Ser, Par with clock (XT); Ser with par port (AT) by Everex	70/70
Serial or printer card	30/25
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MODEMS

Qubie 300-1200 baud - internal/external	$125/135
Qubie 2400 baud - internal or external	250
Everex ½ slot 1200 baud or 2400 baud - internal	110/230

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256K memory card with PP with 0K	$55
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Citizen MSP 10	300
Canon Laser Printer 841	1950

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640K Turbo motherboard, 2 layer with 0K/640K	110/179
640K Turbo motherboard, 4 layer with 0K/640K	130/195
Faraday PC motherboard, 5 slots with 256K	105
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CDC full height disk drive	110
Seagate ST225, 20 meg w/controller & cables	350
Seagate ST238, 30 meg w/RRL type controller w/cables	400
Full height hard disk by Quantum Q540	575
Full height hard disk by Seagate ST4038 (40 MB)	550
Full height hard drive by Seagate ST4051 (50 MB)	640
Teac 20 MB streamer tape drive with controller	500
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Zenith Introduces New PCs Offering Video Cards And Added Memory

Zenith Data Systems (312/699-4839) has introduced its Z-150 series of PCs offering EGA and Hercules-compatible video cards. They also accept EMS upgrade chips, which permit 1.25 MB of added RAM without using an expansion slot. Five models range in price from $1,749 to $2,799.

ConoDesk 300

Conographic Corp. (714/474-1188) has announced development of the ConoDesk 300, a TMS34010-based product line for the IBM AT and the Compaq 386. The ConoDesk 300 series is built around custom silicon and 34010 implementations of the Conographic curve technology and font compiler. The ConoDesk products integrate Conographic technology into color graphics adapters, laser RIPs, scanner interfaces, and video capture capability. The Conographic font compiler includes interpreters for PostScript, Interpress and DDL, printer emulators for HP LaserJets, Xerox 4045 and IBM 3812, and drivers for Microsoft Windows and HALO.

NETWORKING & COMMUNICATIONS

cc:Mail Enhancements

PCC/Sytems (415/321-0430) has announced new prices for its cc:Mail product line. *cc:Mail* for LAN's ten user Starter Package at $995, has been reduced to $795. A new addition to the Starter Package is cc:Mail Notify, an automatic, RAM-resident, new message notifier which was previously sold separately. The five-user Expansion Kit, at $450, has been reduced to $395. The 25- and 100-user Expansion Kits have been replaced by an Unlimited User Expansion Kit, priced at $2,495 per server.

Tallgrass Offers Software Swap

Tallgrass Technologies (913/492-6002) has launched a new dealer program called The Great LAN Swap. This new program allows Novell customers to swap their Netware software for Tallgrass' Vines virtual networking software. Customers simply return Novell software to their authorized Tallgrass retailer and receive Vines software free of charge with the purchase of a LanCourier network server.

Tangent Bridges The PC/Mac Gap

Tangent Technologies (404/662-0366) has announced *PC MacBridge/AFP*, a software package that allows IBM micros to access Apple's AppleShare file server. *PC MacBridge/AFP* is fully compatible with the published AppleTalk Filing Protocol (AFP). It allows PCs to be easily integrated into a networked server environment. *PC MacBridge/AFP* works with *PC MacBridge/ATB*, an AppleTalk board for the IBM PC that enables the PC to function as a node on an AppleTalk network. This allows the PC to communicate with other micros on the network and PostScript laser printers. Once the software is installed, the PC becomes a client of an AFP server, and can access both PC and Macintosh files. ($150)

Unisoft Develops New Operating System For The Mac II

Unisoft Corp. (415/644-1230) has announced its participation in the development of a System V operating system for the new Macintosh II computer. Called A/UX, the version of System V for the Mac II is an implementation of AT&T's UNIX System V and Berkeley Software Distribution(BSD) environments with UniSoft and Apple enhancements. The new system includes TCP/IP protocols; UniSoft's System V implementation of Sun Microsystems' Network File System (NFS) and AppleTalk for UNIX. A/UX meets the System V Interface Definition (SVID) standard and has passed the System V Verification Suite (SVVS). The company has also announced high-performance optimizing Fortran 77, Pascal and C compilers with the A/UX operating system. These compilers were developed by Green Hills Software and implemented for A/UX by UniSoft, significantly decreasing the size and increasing the speed of a program over other compilers.

Waterloo Improves Port

Waterloo Microsystems (404/441-9252) has a new version of Waterloo Port, an advanced LAN for PC networking. Port 2.40 provides improved speed, full NETBIOS support, and foreign language keyboard support. ($1,695)

Network SmarTerm

Persoft, Inc. (608/273-6000) has announced new verisons of two of its *SmarTerm* terminal emulation software packages. Users of these new versions who purchase an optional network kit can now communicate with host computers through either the Ungermann-Bass Net/One or Bridge Communications EtherTerm network systems. Both terminal emulation packages allow IBM micros or compatibles to communicate with larger mainframe or mini hosts. The new version, *SmarTerm 220*, sells for $195, *SmarTerm 400 version 3.2* for $149.

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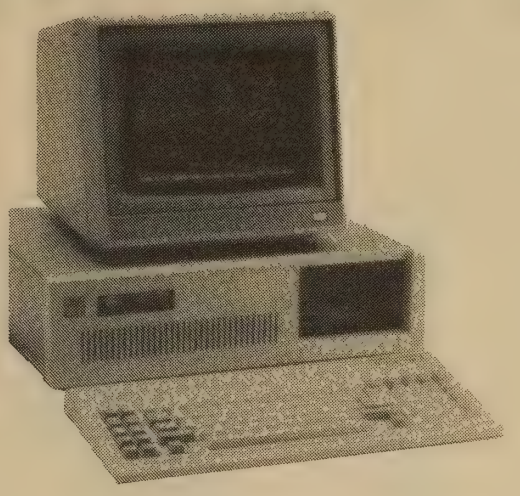

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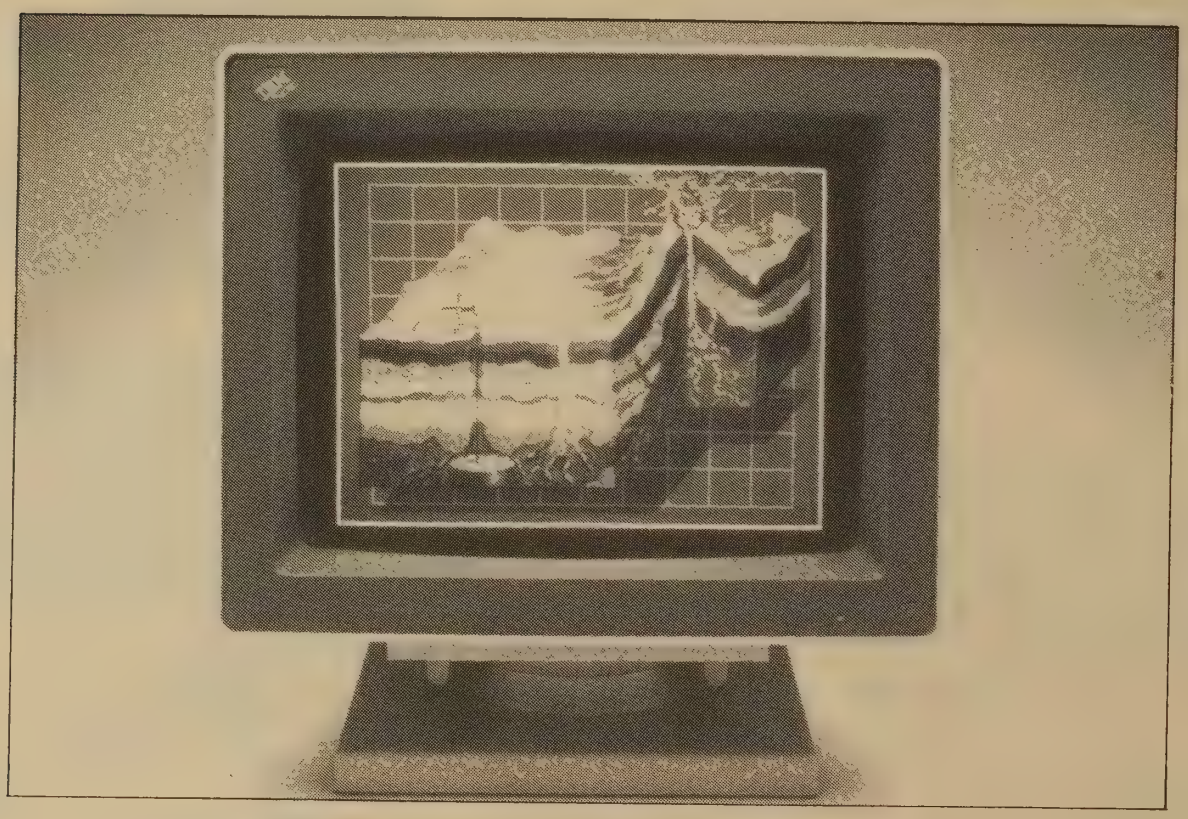
IBM Unveils Personal System/2

By Martha Conway



IBM also announced new high-resolution monitors supporting enhanced graphics.

On April 2, under flashing neon lights and in front of 5,000 dealers across the country, IBM announced its long-awaited line of new products. In support of the notion that these new offerings are "a new generation of personal computing products and programs," IBM no longer calls them "personal computers," choosing intead to call the new line "Personal System/2." The product family includes new software and hardware incorporating significant amounts of proprietary technology, advanced operating systems, and drastically expanded memory and storage devices; in addition to new computers, Personal System/2 includes a new line of printers and monitors supporting enhanced graphics.

OPERATING SYSTEM/2

IBM confirmed speculation by announcing, but not releasing, its Operating System/2, the long-awaited operating system that exploits the power of the Intel 80286 and 80386 microprocessors. Calling OS/2 "the growth path for DOS," IBM developed the new operating system jointly with Microsoft, and plans to begin shipment of Version 1.0 in the first quarter of 1988. OS/2 brings long-awaited multitasking to the IBM world. Data can be shared within each application as well as among different programs, and applications of up to 16 megabytes will be supported. When running multiple applications, user operations will be simplified by a built-in window manager supported by enhanced graphics. In addition, pop-up menus will allow for simultaneous program selection and application viewing.

OS/2 will also provide a graphical-interface DOS environment with windowing (IBM will provide the graphics, Microsoft the windows), a communications manager which allows for extended connectivity, and consistent user interface functions for greater compatibility among third-party applications. A built-in relational database system, consistent with IBM DB2 and based on the Structured Query Language, will support interactive writing, as well as application creation tools. OS/2 will provide a consistent user interface and application portability across IBM systems.

Version 1.1 of OS/2 will offer additional features, notably a graphics-based Presentation Manager and windowing capabilities. The "Extended Version" of OS/2 will combine the enhanced base operating system functions of 1.1 with IBM communications support and data base management. However, IBM won't be announcing even an availability date for these versions before the fourth quarter of this year, which puts the actual shipping date somewhere in the distant future.

Many of the new operating system's features are possible because of hardware advancements in the form of advanced proprietary technologies, which have both allowed for a more compact design and presented a more difficult task to clone-makers.

PC-DOS 3.3

PC-DOS is not out of the picture. Announced along with OS/2 was PC-DOS 3.3, the upgrade that supersedes all prior versions except 2.1. Unlike OS/2, DOS 3.3 is available now. Although still a single-tasking operating environment, it boasts new functions, such as the ability to support nested batch files and access to environment values, the ability to append files in different subdirectories, and a greater ability to modify most file attributes.

DOS 3.3 will serve as an interim operating system until OS/2 is available. Because it will support the entire new line of personal computers, DOS 3.3 functions as a bridge between the old and new lines of hardware and applications.

IBM also announced the 3270 Workstation Program Version 1.0, which will support selected models of the IBM PC, XT, AT and 3270 PCs, as well as the new product line. The program will provide up to four concurrent host sessions, up to six

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concurrent DOS sessions, and up to two notepad sessions.

MODEL 30

The new computers range from the low-end Model 30, based on the Intel 8086 bit microprocessor and priced at $1695, to the high-end 80386-based Model 80-111 with 115MB hard disk, priced at $10,995.

The Model 30 is positioned as a general-purpose, entry-level machine in two configurations. It costs less than and provides up to 2½ times the throughput of the PC-XT, thanks to improved engineering. With three expansion slots, 3.5″ floppy disk drives and a standard memory of 640K, Model 30 will run PC-DOS 3.3 exclusively. Its color graphics subsystem supports text and graphics modes. Currently available, the Model 30 lists for $1695 with two floppy drives or $2295 with a 20MB hard drive.

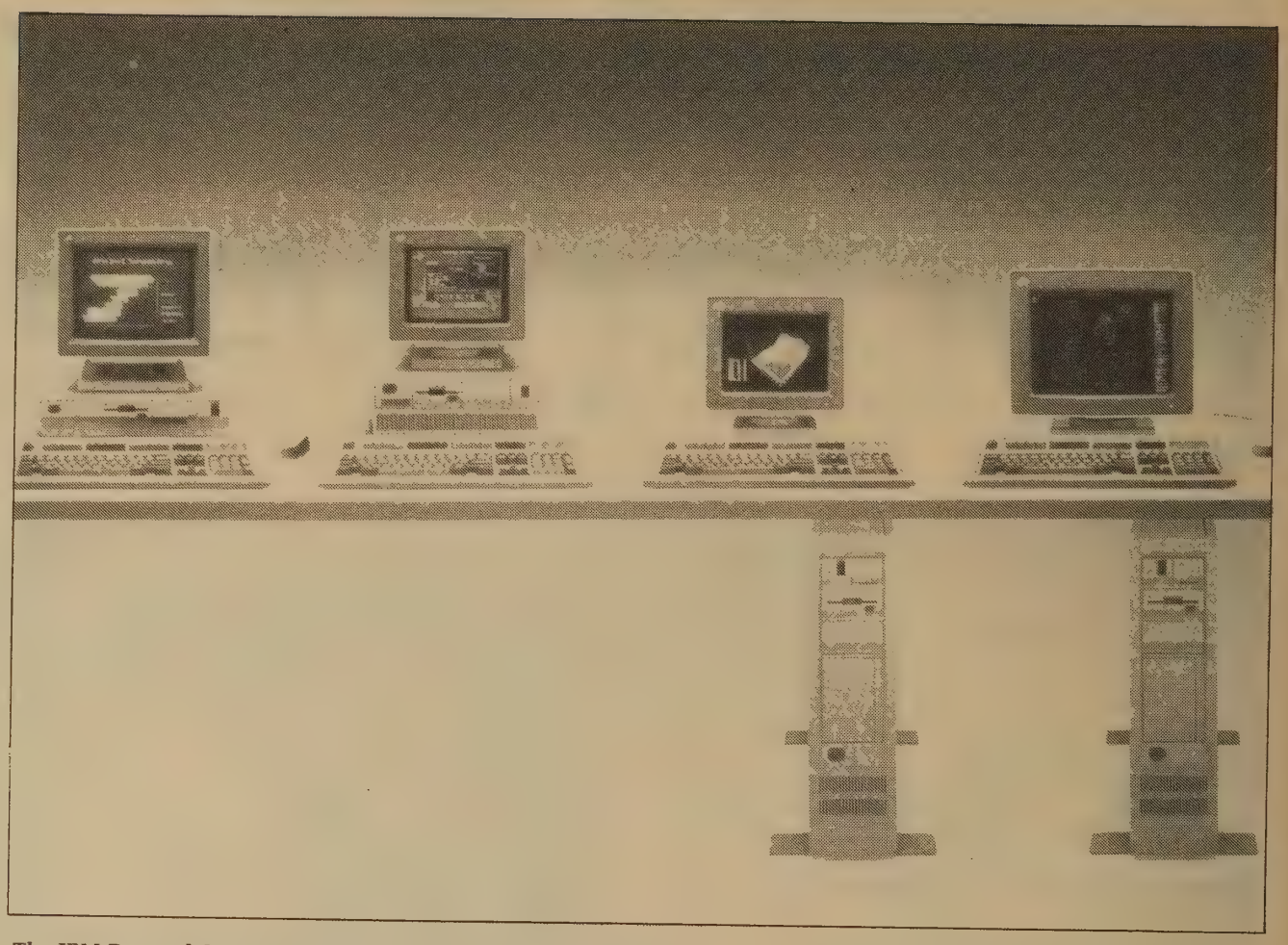
MODELS 50 AND 60

Models 50 and 60, both also currently available, are based on the Intel 80286. Model 50 includes the standard features of the Model 30 as well as a 20MB hard disk, a megabyte of RAM expandable to seven megabytes, and a floppy disk capacity of 1.44 megabytes. It runs at a clock speed of 10MHz. In addition, it supports both DOS 3.3 and OS/2, thereby offering application growth capabilities while maintaining software compatibility with current IBM PC models.

Model 60, available now with a 44MB hard disk at $5295 and in the second quarter of 1987 with a 70MB hard disk for $6295, includes a megabyte of RAM expandable to 15MB, seven expansion slots and a total system storage capacity of 115MB. It supports both DOS 3.3 and OS/2, and is designed for business capability and support of connectivity features. Its Video Graphics Array supports enhanced color graphics and enhanced color text mode. It can be used as either a single-user machine or as a network file server, and runs at 10MHz.

MODEL 80

Model 80, the most powerful of the new machines and based on the 16 MHz 80386 microprocessor, will be available in July in 44MB and 70MB configurations at $6,995 and $8,495 respectively. Its 115MB version, priced at $10,995, won't be available until the last quarter of this year. The Model 80 is designed for customers requiring higher performance and larger storage capacity, mainly those in scientific and engineering environments. In addition to the features of the Model 60, the Model 80 will include two megabytes of RAM expandable to 16MB and a maximum storage capacity of 230MB.



The IBM Personal System/2 Family: (l-r) Models 30, 50, 60 and 80.

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Fixed disk[2] Additional options	20MB	20MB	44, 70MB 44, 70, 115MB	44, 70, 115MB 44, 70, 115MB
Maximum configuration[3]	20MB	20MB	185MB	230MB
Expansion slots[4]	3	3	7	7
Operating system(s)	PC DOS 3.3	PC DOS 3.3 and Operating System/2™	PC DOS 3.3 and Operating System/2	PC DOS 3.3 and Operating System/2

PERIPHERALS

Among hundreds of peripheral and add-on products, IBM also announced four new high-resolution analog monitors to support the new machines' advanced graphics capabilities. The 12″ monochrome 8503 features up to 64 gray shades; the 14″ color 8512 and 12″ 8513 monitors display 256 colors at a time from a palette of 256,000. All three monitors feature 720×400 resolution in text mode and 640 × 480 in graphics mode. The 16″ Color Display 8514 displays 1024 × 720 resolution in both text and graphics, and offers the same color palette as the other two color models. The monitors are priced at $250 for the 8503, $595 and $685 for the 8512 and 8513 respectively, and $1550 for the 8514. The 8514 will be available in June; the other monitors are available now.

IBM also announced a number of other peripherals, including a WORM Optical Disk Drive at $2950 and a laser printer. Called the Personal Pageprinter, it lists for $2199, prints at 300 dpi and uses the memory, printer control functions, and fonts resident in the host computer. The optical disk drives will begin shipping in the second quarter, the laser printer in the third. □

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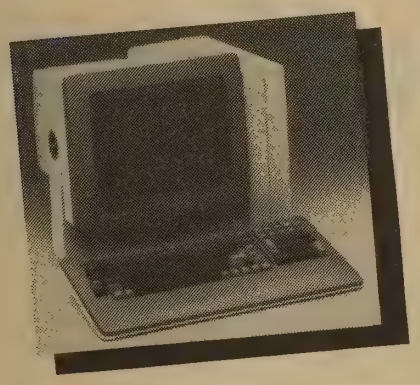

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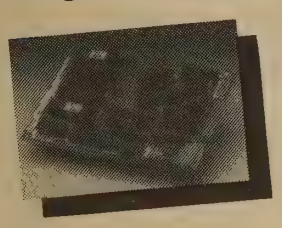

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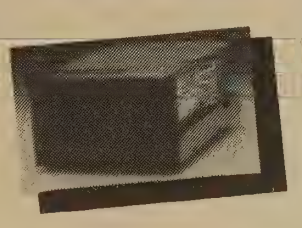

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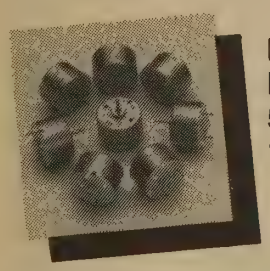

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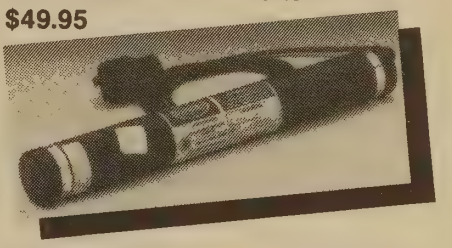

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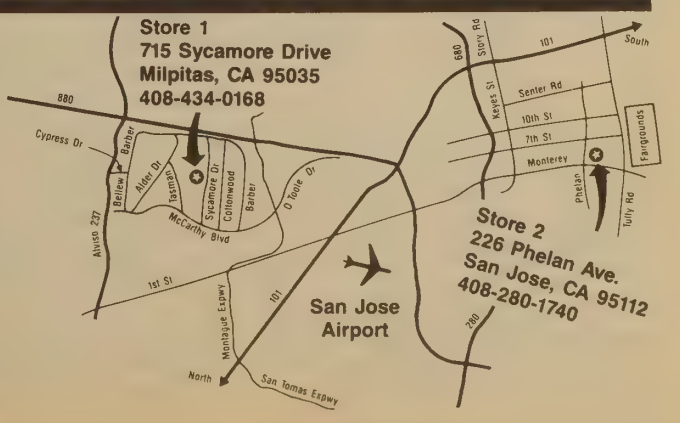

AST Makes The Corporate Connection

By Jeff Spurrier

Connectivity may be the buzzword on everyone's mind these days, but for Thomas Yuen, one of the founders of Irvine-based AST Research, the move into expanded data communications in the PC market was obvious a few years ago.

In an interview with *MicroTimes* in April, 1985, he noted: "Based upon our experience in the minicomputer field, we felt that once you got the PC into the office, you had to be able to communicate with other computer systems. So aside from just coming out with memory expansion and multifunction products that fit what were then the needs of the business community, we also came out with several data communications products that were specifically aimed at the business office environment. I think that if you look, you will find that AST was the first company to offer microcomputer-to-mainframe-computer data communications products for the IBM PC."

It may come as something of a shock to micro users, but AST is no longer simply a small manufacturer of highly reliable PC enhancement boards. The company that SixPak built now offers a full range of products, ranging from a high quality, high performance AT compatible micro to 2 X 9600 modems, micro-to-mini and micro-to-mainframe emulation boards, and the new Mac286—a 286 computer-on-a-board that allows a user to run DOS applications on a Macintosh II.

And, oh yes. They also make the SixPakPlus.

Traditionally, the three major connectivity markets have been micro-to-midrange (such as 3X minis), micro-to-mainframe, and LAN hookups. And of course when we talk about micros, we used to mean IBM compatible machines. No longer.

"I think the Macintosh II is undoubtedly a machine that will be in businesses to a large extent, along with the SE," says Ashok (Ash) Jain, head of AST's Apple Enhancement Group.

That comment might have elicited guffaws from dedicated PC power users just a few months ago. Right, they'd snicker, businesses like typesetters and animation houses where those pretty graphics are more important than the need to deal immediately with the budget on a *Lotus* spreadsheet for the head office. Let's talk *real* business here.

Hard on the heels of the Mac II's announcement, AST *is* talking real business—with pretty graphics to boot. In early March Jain's Apple Enhancement Group, working hand in hand with Apple and Phoenix Technologies, launched a series of new AST products which bring MS-DOS right into the core of Apple's hottest new machines.

The two new boards, the Mac86 and the Mac286, let Macintosh users run in a Mac window software written for MS-DOS machines, *at XT and AT speeds*. Data can be copied and pasted between the two environments, and various Mac desk management programs and peripherals can be accessed easily. Users can either hook up an external 5.25 disk drive or directly install copy-protected DOS programs onto a Mac hard drive. It's the ultimate marriage of convenience that Apple adherents have dreamed of for years.

"So Apple has provided the MS-DOS solution," says Jain. "Big deal. Really, what we have seen in the last two months is a tremendous amount of eye opening as to what the MS-DOS environment—if implemented the way this has been—can do in a Macintosh. You have the highest level of connectivity. Two operating systems can coexist side by side and give you the best of both at one time. That's really what people are just beginning to get a glimmer of with these products.

"Let's take one very good example right here at AST. Everybody at AST uses PCs. There's one department that doesn't, which is the Apple divison. We use Macintoshes. Everybody else in the company uses *Lotus* spreadsheets. There is absolutely no way for us to take that (data) and use it in a Macintosh. We are all networked here, and if we had one Mac II I would love to put that (286 board) in, and then I would be able to take my budget—which comes in a *Lotus* spreadsheet on a 5.25 inch floppy—move it into *Excel*, let every department do their thing on their Macintoshes, integrate it back, and give it back to the IBM division. That's a beautiful, perfect application of how it can be used. There are other ways of interchanging data by using serial ports and ASCII, but there is nothing like this to get you the most efficient way of being in both environments at the same time."

Such free floating co-existence is bound to interest most individual Macintosh users, as well as corporations and federal agencies which demand MS-DOS compatibility. Now there is indeed a choice. And of course it wasn't always that way with Apple.

Two and a half years ago, AST started the Apple division. At that point Ash Jain, a native of Punjab, India and a graduate of Cambridge University and the Engineering College of the University of Jabalpur, was dividing his time between the IBM side of AST's business and Apple. At the time, most development involved the Apple II, while the Macintosh was being pummeled by the trade press as being simply a yuppie toy. The open architecture of the IBM helped to secure the success of the PC (and AST), and Apple was left with the hobbyist and school markets.

"Dealers who were successful and ambitious were all shifting (away from Apple) towards IBM," says Jain. "The Apple following was almost like a second class citizen because nobody was buying Macintoshes.

"The change came last year with the Mac Plus and the opening of the architecture. Business became interested in Apple, and we began to see dealers who would sell Macs but not Apple IIs. Also, we saw the PC clone market flatten out so the dealer community became saturated. Now we have too many dealers selling too many IBM PCs and compatibles, and the hope for dealers has begun to shift to the Mac because they don't have the price cutting there, and there are better margins. In 1987 the Mac dealer is beginning to look like the PC dealer."

While the new Macintosh boards aren't cheap (see box), Jain and AST are betting on the idea that Mac owners will demand the connectivity link as a feature—even if they aren't currently in need of MS-DOS compatibility. The power of the Mac boards is obvious, yet the the clean implementation of the connection doesn't "defile the feel of the Macintosh." And then there's also the as-yet-untapped potential of the 286.

"We haven't even seen software that takes advantage of the 80286 yet," notes Jain. "So this is not a one-shot deal when I get the Mac286 board. Maybe I've bought my machine and I'm really planning (only) to use Macintosh (operating system),

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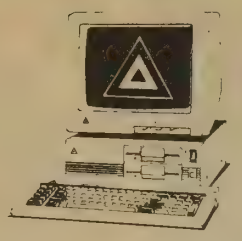

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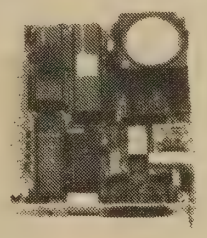

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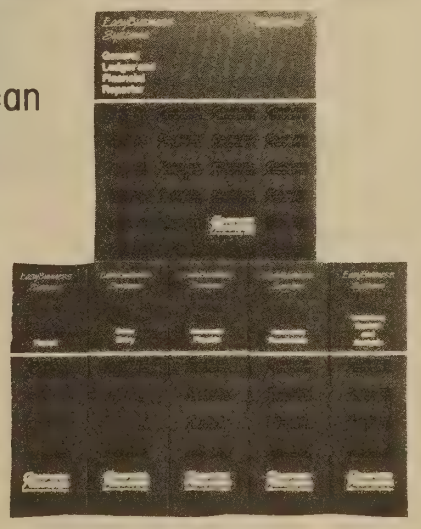

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but there still have to be very powerful application developments in 80286 which needn't appear on the Mac II right away. It extends that availability of applications on the IBM side." Now that the IBM has been brought into the Macintosh environment, one wonders if the reverse would ever be possible. Don't count on it, says Jain. "In order to bring the Mac into the PC world, someone would have to emulate a Mac; the last time someone mentioned that to (Apple's) John Sculley he said 'How fast do you want to see a lawsuit?'"

AST, on the other hand, has nothing to worry about in its Apple-related boards. The company has worked closely with Apple over the past two and a half years, standing by the Mac's makers when just about everyone else in the industry had written them off.

"If you look at every other third party company in existence, there is nobody that has supported Apple to the extent that AST has," says Jain. "You look at companies like Quadram and Tecmar—they ignored Apple completely. They didn't feel Apple had any potential.

"Which is not to say those guys were wrong. You look at all the failures Apple had had: the Apple III was a failure, the Lisa was a failure, the Mac was a failure, the IIc was criticized for being closed architecture. But we believed you don't shut down a 1.5 billion dollar company overnight. Patiently waiting and working with Apple all that time, (you develop) a kind of a relationship you can't put down on paper."

With all the excitement being generated around the Mac/MS-DOS link, does that mean that the PC is soon to be a forgotten machine? Not likely. According to Jain, in fact, the ultimate connectivity of two operating systems living in one environment should actually enhance the marketplace for both machines. Connectivity doesn't mean taking away from one and giving to the other, but rather adding to both.

"IBM is a fairly big company; people at Apple (and AST) are acutely conscious of that and we are not fooled by the fact that we have all this excitement about the Mac and what it can do in the business environment," says Jain. "That doesn't mean we're not on our toes to see what are the alternatives that IBM can come up with. And really the best bet we have is to come up with solutions and ideas that enhance the market and do not take the market share from one environment into another. Really, if you look at what the 286 does, the realization comes slowly—it is not whether you have to choose between an IBM and a Mac. It doesn't matter what you choose. For heaven's sake, get a computer! That's the message.

"Because you *can* have both the worlds. It's expanding the ability of the environments together which expands the whole marketplace. There are a lot of people who don't have computers today. Everybody says there should be as many computers as there are televisions. If that's true, we have a lot of work to do!"

* * * *

Back in 1983, Mike Krieger bought his first AST product—a Model 12 emulation package that allowed him to link his home computer to his company's System 3X mini.

PHOTO: ANN SUMMA

Ash Jain (l) and Russell Hertzberg, with the Mac286 coprocessor board.

"It was only a few months later, after I had got the board up and running and was finally able to work at home a few days a week, that I started seeing all these ads for the SixPakPlus," says Krieger, AST's marketing manager in charge of System 3X products. "I said 'Gee. That's the same company, AST. Look at that. They make memory products too!"

The handful of memory boards that AST pioneered in the early eighties rocketed the company from obscurity to PC stardom. And while the PC boom that helped build AST brought personal computers into homes for the first time, in corporate offices throughout America the microcomputer was still something of a joke when compared to the power and prevalence of the 3X machines—the IBM System 34/36/38 minicomputers.

"People (involved with 3X systems) never use PCs," says Krieger. "They've been working on 5250 workstations for the last eight years. PCs are anathema to them. They say 'It's too small. It's below me. Why should I get a PC? I've got my information on a 36.'"

With connectivty all the rage in the computer industry, that elitist attitude has been debunked to a large extent. It's a lot cheaper and faster for a company's financial officer working in *Lotus* to have his PC talk directly to the mini than to have his secretary re-type the figures generated on a 36 into a *Lotus* worksheet. And, notes Krieger, it's not just the downward connectivity mobility of Fortune 500 companies that's making an impact here.

"It goes both ways," he says. "It could be the guy who's grown from a PC into a 34 or a 36 (minicomputer). In the past five years you've seen a lot more of that. A guy got a PC to start and then a second PC. He'd run payroll on one and general ledger on the other—he'd never network them. And then someone came along and said there's a System 36, you can get a desktop machine and get multiuser capability. Great! Then he spends three months at a data conversion house converting his 5.25 diskettes. Now you can bypass all that, but people just don't know. They just don't understand what connectivity really means."

What connectivity really means is more than simply sticking an emulation card in a PC so it can receive mini-generated data. Such a hookup is really nothing more than the creation of a dumb terminal—a fast dumb terminal, granted, but a dumb terminal all the same. Products like PC Organizer (from IBM) are starting to make the intelligent workstation possible, allowing the user to work in the System 36 emulation mode, hotkey directly into DOS for applications and switch back at a keystroke into 3X. Now *that*, say Krieger, is an intelligent workstation.

And he should know. Mike Krieger got his start in data processing in 1969 when he was still in high school. He spent one summer helping his brother convert his father's textile factory in Maryland from an IBM 1401 system to an IBM System 3, learning System 3 in the process. In the seventies he landed a job working as a programmer at JFK Airport and became involved in Common, a Systems 3 user group. When the IBM 34 was announced, he be-

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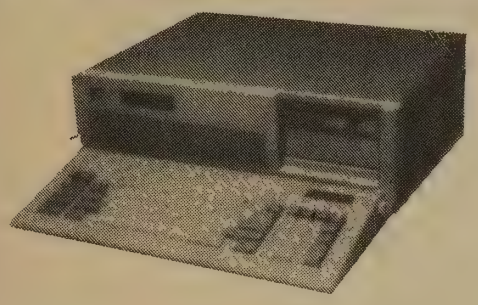

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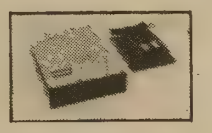

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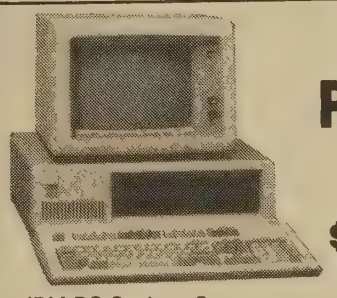

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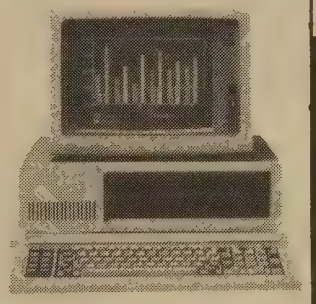

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came chairman of the System 34 project group in Common, gaining a fair amount of notoriety. (He took on the CB handle of "The 34 Kid," by which he is still known on CompuServe.) His background, he says, is 80% 3X and 20% PC, making him the perfect person to help lead AST's strong push into the mini environment.

"One thing we've seen a lot of in corporate America is the use of a local System 36 and then a remote System 38, at corporate headquarters," says Krieger. "That's getting more and more common as they put out more of these baby 36s. With our Gateway products, if you have a local board attached to your local 36 and a remote board attached to your remote 38, you can select sessions off of both of those Gateways and actually hotkey from a 36 to a 38 to DOS. That is hot.

"When we spec-ed that out, we said 'This is gonna blow people away.' When I saw the engineers demonstrate it for the first time, it floored me. Because the support 36 and support 38 device drivers can co-reside in a PC, you can actually do file transfer from a System 36 to a System 38 using the DOS copy command, copying between virtual drives. That is incredible. You talk about ease of use. You can sit in DOS, type '**copy e: so-and-so g:**' and it copies off of the one virtual file into the other."

AST 5250 Gateway products allow any user in a LAN to hook up to a 34, 36 or 38 IBM through a single machine which acts as the gateway server. Unlike other gateway products, however, AST's run in the background on the main PC and can support multiple gateways on the LAN—up to 21 users on a first-come, first-serve basis. Sessions can be dedicated or shared, allowing true freedom for those who have to live off the LAN.

The AST focus on micro-to-mini connectivity may seem sudden to PC users, but according to Krieger the move was inevitable. "Basically AST looks at itself as less of a board level company these days," he says, noting that he's only been with the company since last spring. "They don't want to be remembered as the SixPak company. They made their millions there but that was a springboard for them to come up with things like the Premium 286 (AST's AT compatible micro). I think (the connectivity push) was in conjunction with the systems push. I think it all started back in April when IBM announced they were going to start putting 640K on the motherboards and start building in graphics functions in their PCs.

Ash Jain: "Two operating systems can exist side by side and give you the best of both at one time. We've seen a tremendous eye-opening as to what the MS-DOS environment can do in a Macintosh."

"AST was in the right place at the right time five years ago. SixPakPlus sold millions of boards. IBM noticed that. That did not get by them. They're not that thick and that slow.

"I think at that point the founders of AST had realized they had to make some changes in the way they do business. SixPak wasn't going to be alive forever. Of course SixPak is still selling strongly, only because there are so many PCs out there. The market for enhancement products is going to be around as long as there are MS-DOS machines in the marketplace. They'll be selling SixPaks when my kids are in college. But to become a company for the 21st century, they really have to expand into other areas, take more bold and aggressive stabs at new markets."

As for the future, Krieger says he sees even more integration of connectivity features in single level hardware products, merging the functions of Model 11, Model 12, 3276 and 3278 boards into smaller, tighter packages. Other changes he foresees are more customized integrated circuits(application specific ICs), new surface mount technology that makes for easier switching of hardware, and more soft-loaded firmware instead of ROMs: "We're going to have RAM that gets downloaded from your PC code, so that as new features are added to the mainframe, those connectivity features can be addressed properly through a diskette change rather than having someone send a ROM back or change the hardware design of the product."

Those are going to be the big changes, and beyond that, he says, it's all up to the software.

"The connection is going to be really perfected—if it hasn't already been—the perfect twinax board, the perfect coax board, and the perfect Star-LAN board. If they're not here today they're going to be here in a year. And once that's done, it's all software. Isn't that what they always said it would end up being?"

* * *

Far and away the largest connectivity market in America is the micro-to-mainframe arena. In the past, large corporations who wanted to provide their users with access to mainframe machines relied upon IBM 3270 workstations. With the onset of the micro boom, suddenly executives began bringing PCs into their offices; rather than have the double footprint of two machines taking up space, 3270 emulation boards were used, allowing the PCs to operate a 3270 workstations as well as standalone computers.

According to a 1985 market planning report from International Data Corporation, in 1984, PCs performing 3270 communications amounted to 14% of the market. That figure jumped to nearly 20% in 1985. And while terminal sales have not fallen, they haven't grown much either. "By 1990, PCs performing 3270 will represent 43%" of the total units shipping, says the IDC report.

That sort of news is music to the ears of Russell Hertzberg, AST's marketing representative in the micro-to-mainframe business group.

"The majority of my market is customers who already had mainframes, probably had networks and terminals, and *then* got PCs," he says. "In some cases people got rid of terminals on their desks and replaced them with PCs. (The advantage of that is) you get everything you had with the terminal, plus you get all the applications software and standalone processing of the PC, plus you get the ability to transfer files; sometimes you even have specific micro-to-mainframe applications to extract data from the mainframe to send into the PC, or extract data from PC applications and send it up to the mainframe. The benefits are pretty significant when you consider the terminal costs, depending on who you buy terminals from. (Terminals) are not that much less than PCs."

Despite the obvious advantages of PCs with 3270 emulation cards, Hertzberg says he doesn't see the terminal market vanishing anytime soon. And he clearly knows what he's talking about. He came to AST four months ago after working four years with IBM in systems engineering and sales. He notes there is a vast contingent of heads-down data entry workers who spend their entire work day keying information directly into mainframes. These front line data drones will no doubt stay chained to their terminals for the foreseeable future. The market that *is* open to micro-to-mainframe connectivity is the work force with more varied information demands.

"There is a wide variety of categories of corporate workgroups who have to do some general knowledge work in one form or another—spreadsheet analysis or presentation graphics—and in addition they have the requirement to access mainframe applications," says Hertzberg. "I don't think you'll find too many MIS organizations pushing those people towards terminal-only solutions. I think most mainframe companies are moving towards PCs for those people."

And once again, AST is in the right place at the right time. The company offers a variety of micro-to-mainframe communications devices: COAX 3270 emulation products, remote communications hookups (in both SNA and BSC protocols), emulation boards for Remote Job Entry 3777 Model 1 and bisync RJE workstations (2780, 3780, 3741 and 2770 machines), and Gateways which emulate IBM 3274 or 3276 Control Units (in either SNA/SDLC or BSC protocols) and allow eight or sixteen simultaneous sessions. Bundled with most products is the File Transfer System software (FTS) which was lauded by *PC Magazine* as being "the outstanding component of micro-to-mainframe products."

While all these boards have made micro-to-mainframe connectivity a

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much less cumbersome project, one product that is sure to gather press for its flashy speed and performance is AST's new 286 AT compatible computer, the Premium 286—especially when it's configured with AST products for mainframe connection.

"The Premium 286, when combined with the AST 3270, provides you with a very low cost product that is quite similar to IBM's 3270 PC, with the exception that it's far more compatible than the IBM 3270 PC with existing PC software," says Hertzberg. "The IBM has a display and a display adapter that has a different resolution and a different screen size, and that has resulted in some companies writing special versions of their software to function on that display and adapter. In addition the IBM, is more expensive than the 286 with 3270 PC."

Such considerations are necessary when dealing with Fortune 2000 companies. Indeed, the entire mindset of selling and supporting micro-to-mainframe products is strikingly different from that involved with board level I/O products. The installation alone is obviously far more complex. It takes very little to snap in a SixPakPlus or a RAMpage! card into a PC, whereas setting up 5250 products may involve modem settings, determining the proper type of network support, possible changes in host software, and configurations of IDs for remote terminals.

Making the sale can also a complex lengthy process by itself, notes Hertzberg.

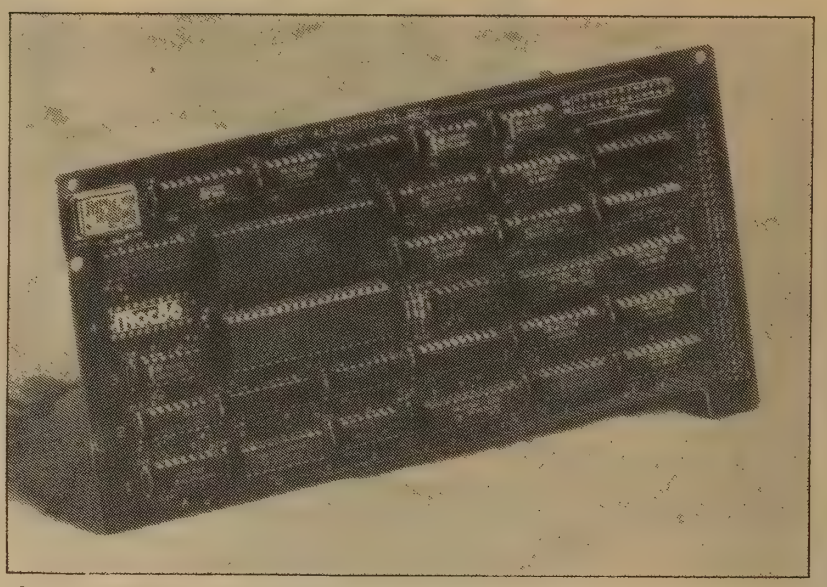
"To go into a MIS or Fortune 2000 type of environment, or even to talk with a dealer or a distributor or a value added reseller about micro-to-mainframe, requires some familiarity with why a particular solution would be required," he says. "You have to understand control units and why they exist. You have to understand the differences between the various 3270 model terminals you're emulating, what's different about a Model 2 versus a Model 4, why would a customer want multiple 3270 sessions as opposed to one session, why would a customer not need COAX products but in fact need the RJE products. All of those questions involve some knowledge of the host world and the customer's needs in terms of the mainframe world. That takes you substantially beyond the micro and the basic needs of the desktop PC."

Still, the desktop PC is where AST got its start. The current push to all levels of connectivity may be propelling the company to new heights as they broaden their market, but the original board-level products will not be forgotten.

In the game of connectivity the players may be different, but the rules remain basically the same. "The perfect connectivity solution to a user is one that lets you get the data you need to get at in an easy way, in a way you find painless," says Hertzberg. □

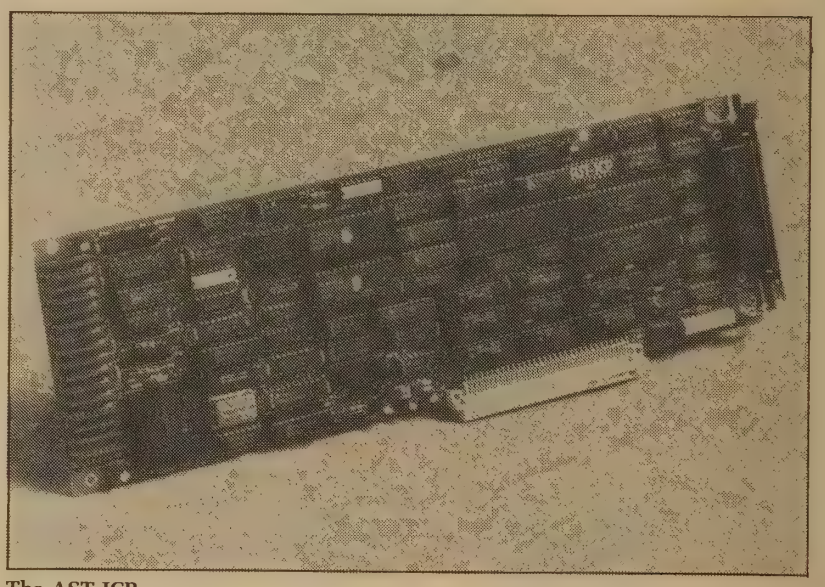
Boards For The Macintosh SE And II

Mac86: This is an 8086-based coprocessor board that allows MS-DOS software to run on the Macintosh SE at XT speeds. Requires one expansion slot of the SE motherboard. Supports IBM Monochrome Display Adapter or IBM Color Graphics Adapter. All MS-DOS enhanced keyboard functions are possible using either the standard Macintosh SE keyboard or the Apple Extended Keyboard. Emulates Microsoft mouse under MS-DOS. Supports LaserWriter, LaserWriter Plus, or ImageWriter in emulated Epson FX-80 mode, via AppleTalk Network. Suggested retail price $599, available third quarter of 1987.



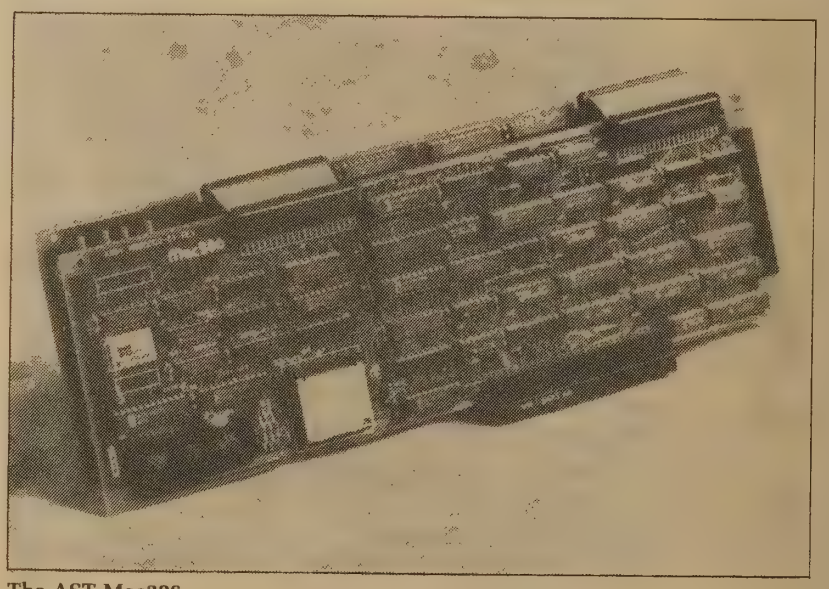
The AST Mac86

AST-ICP: This is an intelligent communications processor using the Motorola 68000 microprocessor. It includes 512K of RAM, a choice of either two or four synchronous/asynchronous serial ports, and an operating speed of 8MHz. By bringing in the extra speed, RAM and serial ports, the ICP greatly enhances the performance of a Macintosh II running Apple UNIX. In addition, two of the ports may be configured to work with AppleTalk. The ICP also makes it possible for independent software developers to create communications programs (to run either in UNIX or Mac II operating system) in the protocols common in micro-to-mainframe installations, such as SNA, Bisync and X.25. Suggested retail prices are $949 for two-connector and $999 for four-connector, available third quarter of 1987.



The AST-ICP

Mac286: This is a two-board, self-contained 80286 computer, complete with a megabyte of RAM, a direct-memory-access controller, a socket for an optional 80287 math coprocessor and a controller for a 5.25 inch disk drive. Supports IBM Monochrome Display Adapter, IBM Color Graphics Adapter, or Hercules Monochrome Graphics Adapter. The AT enhanced keyboard can be accessed by the Macintosh II keyboard or Apple's Enhanced Keyboard. A pull-down menu allows mouse selection of any IBM keyboard function, and all mouse-driven MS-DOS applications are supported. MS-DOS applications can print directly to LaserWriter, LaserWriter Plus, or ImageWriter in emulated Epson FX-80 mode. Suggested retail price $1499, available third quarter of 1987.



The AST Mac286

AST-Pak: This is a multifunction board for the SE which incorporates the AST FlexBus, allowing the user to plug in a variety of option boards, and comes with one megabyte of memory. Suggested retail price $499, available third quarter of 1987.

AST-Pak SSF Option Board: This is an extension of the AST-Pak capabilities; it contains two serial ports and circuitry for connecting an optional 5.25 inch external disk drive. When the board is used with Apple's *PassPort* file transfer software, users may access MS-DOS data files. Suggested retail price $249, available third quarter of 1987.

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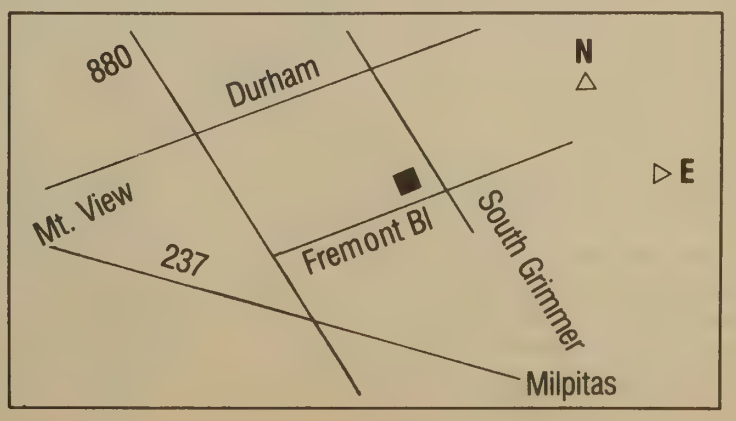

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Analyze Your Needs

When Julian Systems is approached to develop a business computer system, our first question is, "What do you need your system to do?" You can prepare in advance for this all-important question by examining the way that your business works.

Ask yourself a few questions:

- What are the major tasks that keep your business running?
- Of these, which would benefit from automation?
- How many individuals are involved in these tasks?
- What information do they need to share?
- What does each need to do individually?
- Do you need telecommunications?
- What computer systems are your employees familiar with or attracted to?

The answers to questions like these will provide important clues in determining the right combination of hardware and software, to maximize the effectiveness of your investment.

Select Your Supplier Carefully

In most cases, the key to successful computerization lies not in the hardware, but in the supplier.

To get the most out of your computer system, you need expert consultation from the very beginning. Your supplier should be able — and willing — to spend the time necessary to customize the system for your business.

An effective and knowledgeable consultant can help you select the best software, steering you clear of products with functional limitations and "bugs" while assuring full compatibility. And he or she should either know your business, or be willing to take the time to learn.

Look for a supplier who can be the single source for all the components of your system. This will not only simplify the ordering and installation process. It will also make it easier for you to build a relationship with your supplier. And you'll have only one person to call when you need help.

Most importantly, look at your potential supplier's track record. Request two or more references, and call them. Make certain that the supplier has dealt fairly in the past, and has supported his products effectively. Every business computer system — no matter how simple — will require support. And every business client deserves it.

Consider Leasing

Cashflow management is one of the primary cornerstones of a successful business. And one of the best ways of making capital expenditures while keeping cashflow in line is leasing.

A well-structured lease-to-own plan will allow you to:

- Meet budget goals
- Conserve capital and credit
- Obtain a manageable, fixed monthly payment
- Avoid restrictive covenants
- Generate a return on freed capital

For example, consider Julian Business Credit, a leasing plan that Julian Systems has developed in response to the needs of our business clients. Under the Julian Business Credit plan, our clients receive:

- **24-hour approval**
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It doesn't take much imagination to see how a leasing plan like this can allow you to make capital purchases while keeping your cashflow picture bright.

Service Contracts

Business computer systems see daily, full-time use. And if your system should fail, it could seriously hamper your ability to do business. So, no matter what computer system you select — or how reliable it may be — be certain that your supplier can offer you a service plan that fulfills your needs.

After all, most computer industry warranties end after the first 90 days. From there on, you're on your own. And computer repairs can be expensive. The cost of a service contract, by comparison, can be pennies.

At Julian Systems, we've developed a unique service plan for our business clients, called *Julian***Care**™. It's reasonably priced, and it offers coverage that no other computer supplier can equal.

*Julian***Care** is available in three levels of coverage. The most basic plan, **Carry In Service**, provides for repair and/or replacement of the covered equipment, including labor — but the customer must bring the machine to us. This plan is often sufficient for sole proprietorships.

The next level, **On Site Service**, provides for a technician to attempt repair at the client's premises. Since many apparent computer malfunctions are actually software problems — or simple things like dirty disk drive heads and faulty cables — they can be taken care of in a single visit, with minimal down time.

The highest level of *Julian***Care** couples On Site Service with our **Replacement Option**, providing for temporary replacement of equipment while it is being repaired. Since no business can easily afford to be crippled for days by a computer failure, most of our clients choose the full *Julian***Care** coverage plan.

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MAC @ WORK

VOL 1. NO. 1 SPRING 1987

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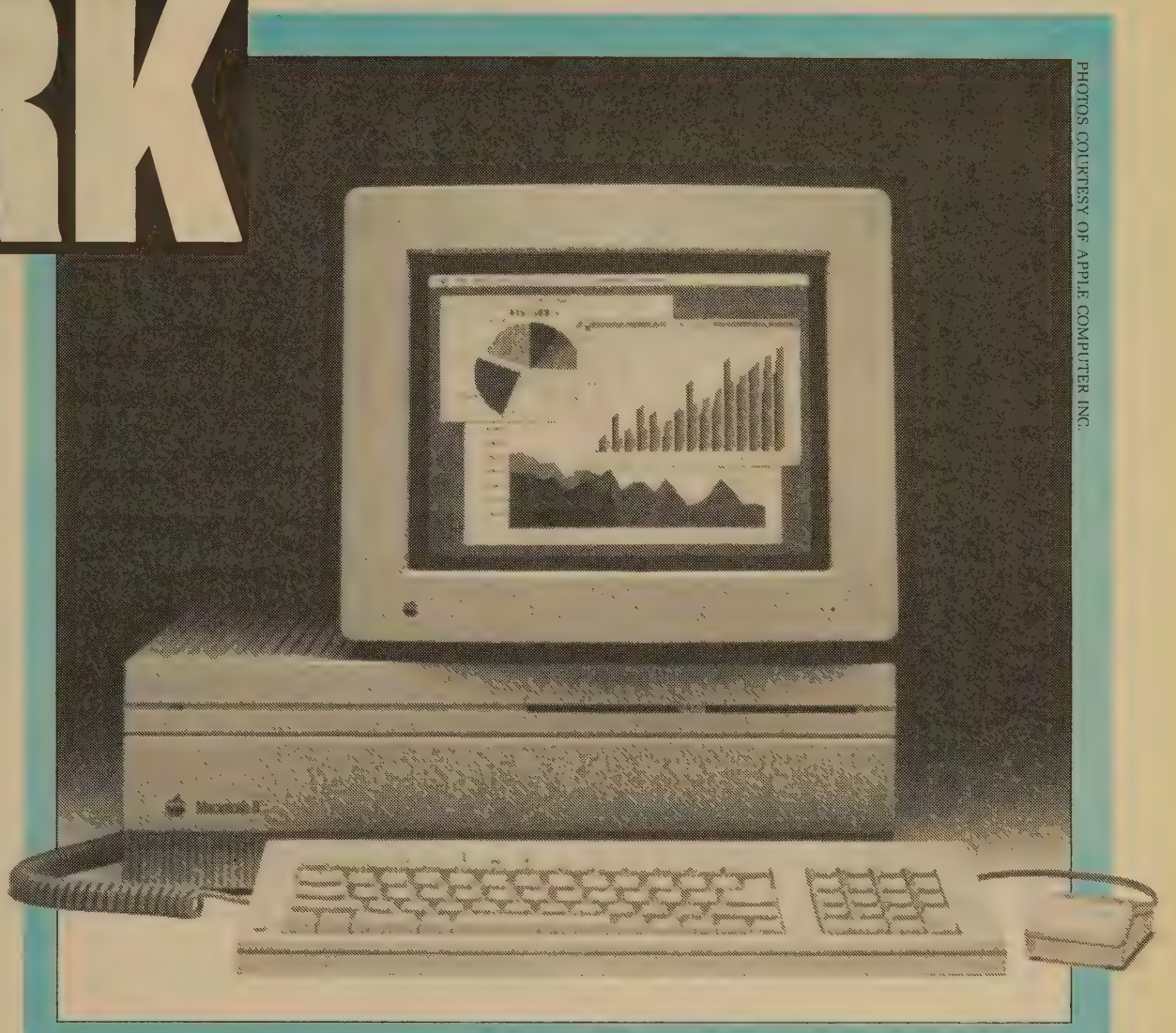

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WriteNow: The Next Step

By Mary Eisenhart

WriteNow bills itself as "the next step in word processing." It claims to "combine the power you would expect from a dedicated word processing system with the ease of operation that you're used to with *MacWrite*."

***WriteNow* incorporates many useful features without sacrificing the ease of use that distinguishes the Macintosh.**

This is a tall order, but *WriteNow* manages to live up to it fairly well.

Many of us are partial to *MacWrite*, particularly those of us who went directly from typewriters to Macs, with no intermediate stops at, say, *WordStar*. *MacWrite* lets you be productive in minutes and reduces those frantic searches of the manual to practically nothing; for many of us, it's the only word processor we'll ever need.

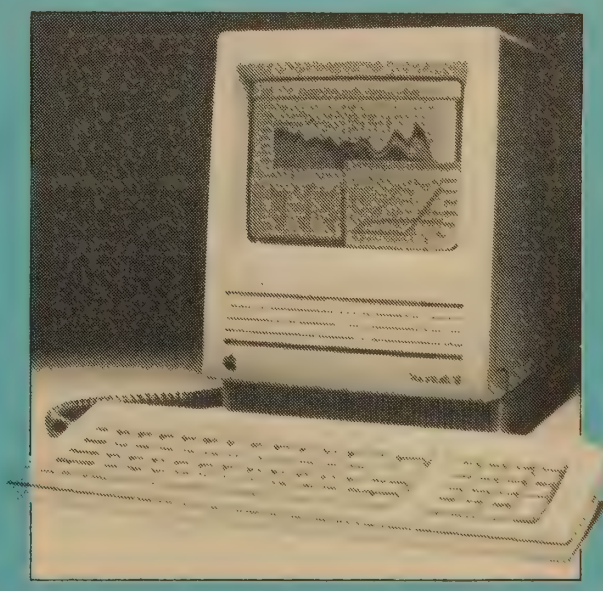
However, it has some limitations. It won't, for example, support footnotes. Its formatting options leave a bit to be desired in this era of increased expectations of document quality. It doesn't let you use graphics in your word-processed documents. And it requires a considerable intuitive leap to visualize how the document on your screen is going to look in hard copy.

WriteNow addresses these problems and comes up with some effective solutions. While remaining,

continued on page 65

Macintosh Enters A New Era

The arrival of the expandable **Macintosh SE** and the open-architecture **Macintosh II** opens new vistas. Now the user can customize the Mac to fit a particular work situation, using various add-on cards, hard disk and tape units. The SE, in a new version of the familir Macintosh box, offers limited expandability, with a single slot for a dealer-installable card and two built-in disk drives; the Mac II offers a fast 68020-based processor and a vast number of expansion possibilities.



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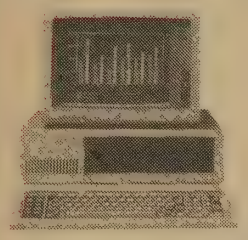

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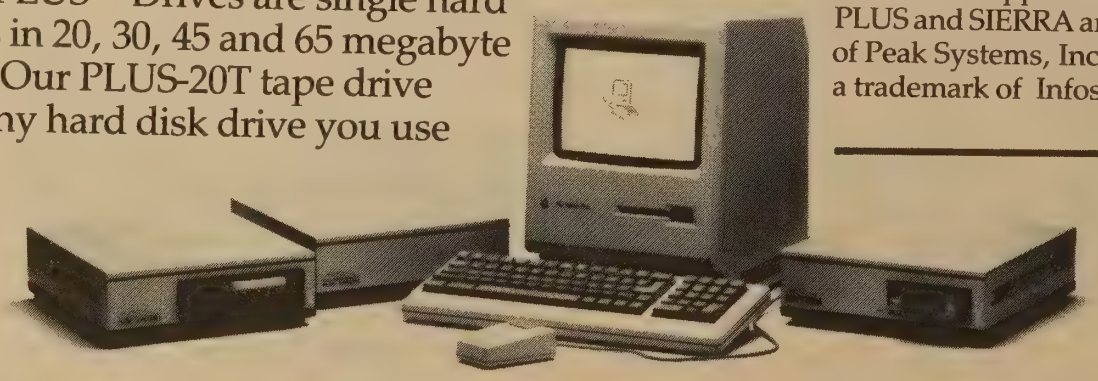

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WriteNow *continued from page 61*

in most respects, as easy to use as *MacWrite*, retaining some of *MacWrite*'s familiar features (most of the most commonly used cloverleaf-key commands, such as I for italics, remain in place), and refraining from using un-Mac-ish concepts, this package offers considerably more flexibility and power. For purposes of this review, we'll concentrate on some of the features that distinguish it from the original Macintosh word processor.

RULERS

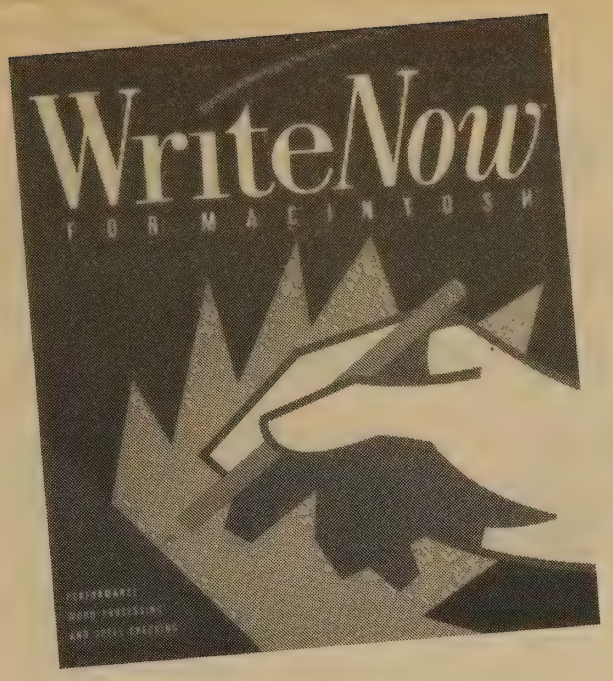
One of the key differences between *WriteNow* and *MacWrite* is that the former is designed to let you format each paragraph separately, which makes it much easier to handle situations where, for example, tables, outlines, or numerical figures must be included in text files.

Rulers in *WriteNow* will not be unfamiliar to the *MacWrite* user; however, they incorporate some new and useful features.

First of all, each paragraph (that is, each block of text set off by a carriage return) has its own ruler; all text, though, will follow the format of the first paragraph in your document unless you tell it otherwise. Like *MacWrite*, *WriteNow* allows you to center, left-justify, right-justify or right-and-left-justify your text.

Tabs and margins are also similar to those in *MacWrite*, but *WriteNow* has added a right tab option, which, with its ability to keep columns of numbers correctly aligned, should be a godsend for those who have to incorporate such figures into their documents.

WriteNow handles the matter of line spacing somewhat differently from *MacWrite*. Whereas the older package essentially gives you the options of single-spaced, one-and-a-half-spaced, or double-spaced text, *WriteNow* gives greater flexibility



by allowing you to increase and decrease spacing between lines by single-point increments. Simply click the mouse with the cursor on the increase-spacing or decrease-spacing box, and your text will reformat itself while the center box tells you exactly how many points you have between lines (*WriteNow* will not allow you to decrease spacing to the point where lines overwrite each other). This takes some getting used to, but provides greatly enhanced control over the appearance of your document.

WYSIWYG COMES TO WORD PROCESSORS

WriteNow represents a great improvement over *MacWrite* in allowing an accurate preview of the way your document's going to look. It displays your pages precisely as your printer will produce them, with headers and footers already in place and page breaks clearly shown.

The program lets you take pictures created in *MacPaint* and other graphics applications and paste them into your document. *WriteNow* will treat the graphic as a separate paragraph, but will allow you to position text in a paragraph surrounding it. It will not, however, wrap text around the picture.

WriteNow will also let you create extra margins on either the right or left side, for binding or other specialized purposes. Perhaps its most distinctive feature among the current crop of Mac word processors, though, is that it lets you format your text in up to four columns, using nothing more difficult than simple Page Setup commands from the menu.

WriteNow offers you the option of viewing all the formatting characters embedded in your text. By selecting the Show Space option from the View menu, you can have your text displayed with tabs, carriage returns, and the like. This can be useful, for instance, in situations where those invisible ASCII characters in a file you've imported from another package are causing mysterious formatting difficulties.

OTHER FEATURES

WriteNow includes a 50,000-word built-in spelling checker, which is quite easy to use and gives you the option of adding words of your own. Other pluses—it's not copy protected, installs very nicely on a hard disk, supports lots of fonts in sizes ranging from 4-127 points, and offers a forward, backward, and wild card find and replace function. It also performs operations like saving and scrolling at speeds to make *MacWrite* blush.

continued on page 78

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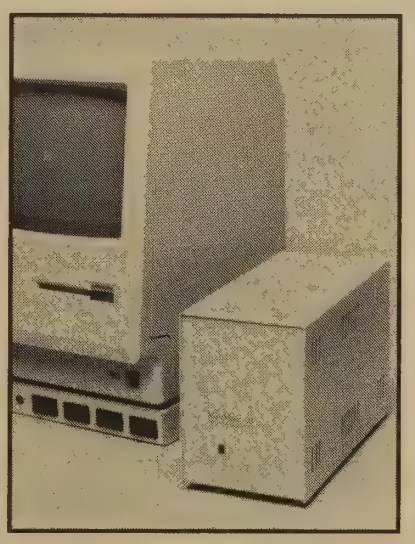

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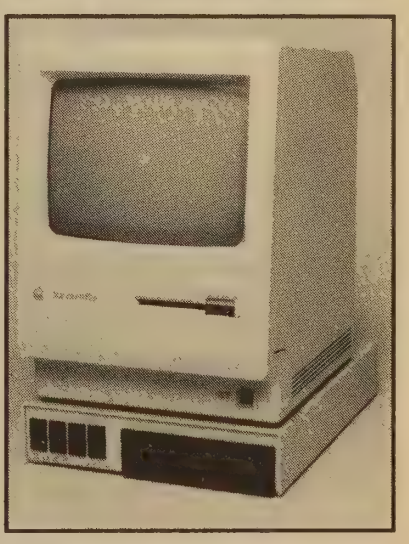

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Doug Clapp: Toward A Transparent Word Processor

By Mary Eisenhart

Columnist Doug Clapp has been working for some time now on *Doug Clapp's Word Tools*, slated for April release by Aegis Development in versions for Macintosh, Amiga, and Atari ST. *Word Tools* includes several helpful utilities for writers, notably a style and punctuation checker which can be completely customized to fit the stylistic needs and preferences of a particular environment."I would hate to be preached at by a program," says Clapp.

"What I really hope *Word Tools* will do is draw people's attention to the words that they write. Good writing is clear, simple and direct—like Strunk and White say, omit needless words. The majority of bad writing is weak, wobbling, preposition-strewn, wimpy, foggy, cluttered—and the idea is that you should use short words, short sentences, and short paragraphs. That will make your writing clear, simple and direct—and easy to write, too, because it'll be a lot shorter."

A good word processor should not make you aware that you're using a word processor. It should just sort of stay out of your way.

Inasmuch as Clapp is a man of strong opinions in matters of writing and computers, we decided to ask him about recent developments in the Mac world, particularly as they relate to word processing.

What's your idea of a good word processor?
A good word processor should not make you aware that you're using a word processor. You should just be writing. It's like if you're watching a really good movie, you're not really aware that you're watching a movie because you're into the movie. A good word processor should just sort of stay out of your way. The trick is how you get it to stay out of your way and still have easy access to all these snazzy features that you're going to want sometimes.

So how does the current crop stack up?
The problem with word processors in particular, and all programs on the Macintosh, is that programs are so feature-laden they're weighing down the interface. It's almost as if the Macintosh interface wasn't conceived and designed to easily incorporate all the features that people are trying to stick in it.

The problem isn't really that people don't have enough features; it's really kind of one-upmanship on the part of the vendor, and it's the ingrained attitude of the computer press that says that features are good, and more features are better. So a developer couldn't really say, OK, we're going to do a really nice bare-bones word processor and sell it. You couldn't do it. The people who have come closest to that are probably the *WriteNow* people, and even they felt compelled to put in a speller and a whole bunch of other stuff.

There's always the next program with more features. *Word Perfect* is going to have macros, for God's sake. And it's not just going to have a dictionary, it's going to have a thesaurus. And then somebody'll come along, and they won't have just a thesaurus and a dictionary, they'll have *Bartlett's Quotations*.

It's like you make a pile of goo of features, and there's all these features that people have already put in, and you slop some more on top of them, and the pile of goo just gets bigger and bigger—and pretty soon the whole thing just sinks under the weight of the features.

I have a real philosophic disagreement with the whole idea that more features are better. I'm one of about two people in the country who really think that Steve Jobs was probably right in the first place—that the Macintosh should've been closed, that there shouldn't be slots. It should've been a toaster.

To sell anything in this market you have to convince the press that it's good, or the press will kill you. But what the press wants is not necessarily what the mass market should have. So you can either make a product for the press, or make a product that will really serve the needs of people.

The Mac II is the embodiment of giving the computer press and the stock market what it wants—zillions of keys on the keyboard, and lots of slots, color and zillions of pixels. But even though a lot of it is software-configurable and it's not going to be as onerous to users as the IBM PC was, it's still a long way from a toaster. And the Macintosh, just a simple old 512K Macintosh, is still a really intimidating machine to a lot of people.

Word 3.0 is really a noble attempt to look like *MacWrite*, but I can't decide in my own mind whether it's a brilliant move that should be applauded or an admission of a flawed interface. I do think Microsoft has all these brilliant designers, but they really don't seem to spend a lot of time asking people what they really want.

What kinds of features would you like to see?
I think the next real generation of word processors will come when a program starts watching what kinds of actions we do and sort of molds itself to them. There's a lot of programs that watch what you're doing—macro programs that record your keystrokes. *MicroPhone*, for instance, is a great program. But word processors should do the same thing, kind of optimize on the fly for things you do most often.

The way it is now, you have to guess how the user is going to use your program and then optimize, if you can, so certain things are really fast. But a program could watch you and make little scripts of what you did, and modem them back to Microsoft or wherever, and they could look at them and they could make these really spiffy profiles of how people really use their program.

When the Macintosh first came out, people called it a toy. How successful do you think Apple's been at re-positioning it as a business machine for power users?
I think they've been masterful at it. Under Sculley's aegis, Apple has been giving at least the press, if not the users, exactly what they wanted, with a vengeance. If I were the people that ran Sun and Apollo computers, I'd just go jump off a cliff.

I think it was a confluence of amazingly coincidental fortuitousness to get the caliber of people together that designed the original machine. I think Bruce Horn is a genius, and Bill Atkinson, obviously, and Andy Hertzfeld is a really good hacker, really good at making things run. It's amazing that these people got together and had the license to do this thing.

I think it's a testimony to how good the original design was that you could play off it so well.

When you consider that IBM, the last time I looked, had over 397,000 employees, and Apple maybe 10,000—given that, and given that we traditionally expect computer manufacturers to basically make boxes, and somebody else writes the programs, and somebody else writes the operating system—considering all that, Apple is delivering much more of a product than IBM.

What are the needs of the business user, as contrasted to the hobbyist user?
I think hobbyists like to have the innards on the outside and the business users like to have the innards on the inside. Business users want to do things really fast, with a minimum of muss and fuss and effort. That, in theory, is what adding features does for you, but of course it never really does unless it's extremely elegantly done.

What kind of applications would you like to see?
The real challenge for developers is to come out with really different ideas, that'll make things simple that people couldn't do before. That sounds really trite, but as the power of computers rises, the domain of do-able things gets bigger. As the speed of computer power increases, all of a sudden all these things that are just stupid, like talking dogs, get to be real applications.

The Mac II will make desktop engineering into a real application. As it is, you've got to really *like* 3D graphics a lot to wait a half an hour for something to rotate. The challenge for developers is what's going to appear on the horizon, what you can do with that little bit of speed that you couldn't do before.

Really good programs will do things in every little second when you're not doing anything. Right now, most of the time, programs aren't doing anything when you're not. In reality, personal computers don't get used much, and aren't doing much, because humans are really slow. You should use all that processing power all the time, if you can—looking in the background for MCI mail or whatever. These computers are expensive—they ought to work really hard, right? □

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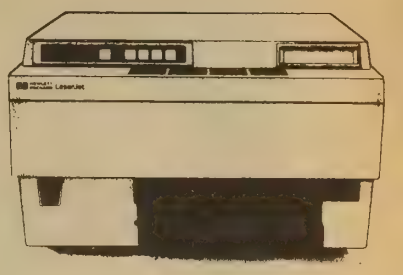

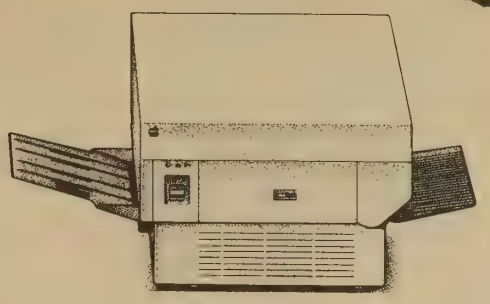

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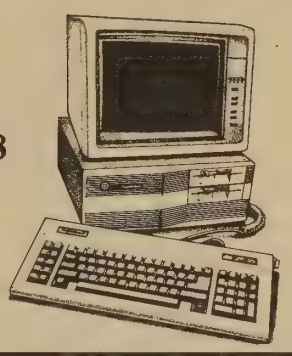

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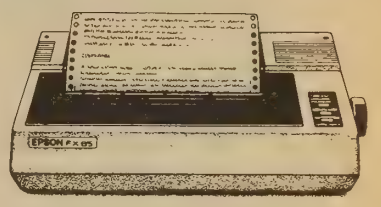

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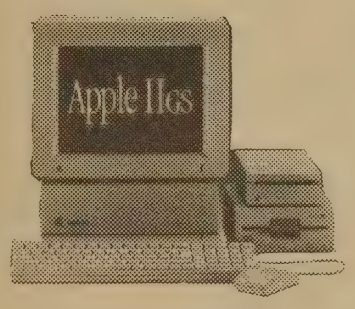

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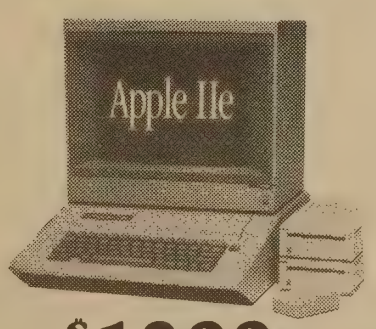

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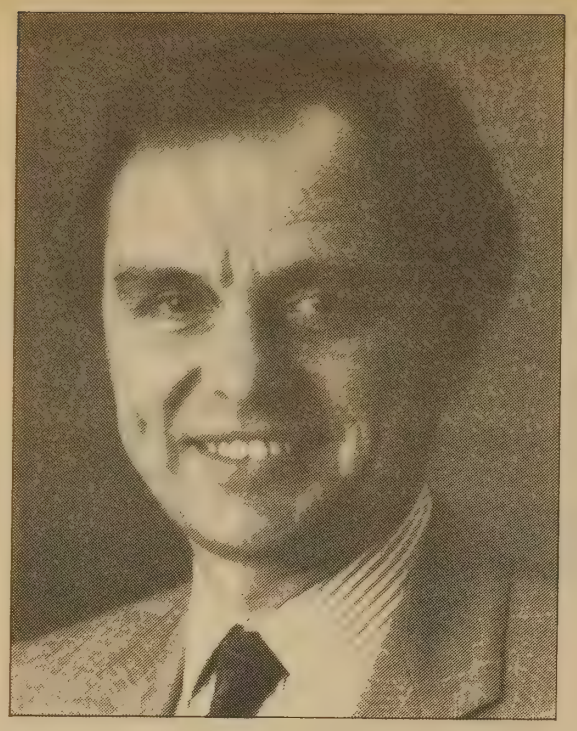

Beyond Desktop Publishing

Apple's Gassee On Mac, Present and Future

"A good user interface," says Jean-Louis Gassee, Apple's vice president of product development, "is one where you have to know less about the object so that you can concentrate on the subject matter and get under way." The Macintosh has a good user interface, and an increasing number of corporate sites are finding that it translates into power and efficiency.

Desktop publishing, says Gassee, has proved to be what he calls "the Trojan niche." He relates with glee the tale of a large midwestern bank, where committee meetings have been going on for over a year to debate the purchase of a single Macintosh to do desktop publishing. The reason, he says, is that the bank's officials are worried about a phenomenon they're witnessing elsewhere —the Mac brought in to create spiffy-looking memos and reports turns out to be good for other things too; before long erstwhile IBM users in the office are discovering that power and ease of use don't have to be mutually exclusive, and they soon begin clamoring for Macs of their own.

If computer manufacturers think that all the possible usages for the personal computer can be encompassed by the designers, they're very wrong.

According to a recent *InfoWorld* report, the Macintosh is currently the best-selling individual computer in the United States. Apple fully expects the Macintosh SE and II, with their increased power, flexibility, and connectivity options, to further the inroads into the business marketplace made by the Macintosh Plus. The Plus was the first Mac with enough power to attract the corporate user; as it becomes increasingly easy to exchange files created in other operating systems and link a variety of incompatible machines together, another obstacle to the Mac's acceptance by Corporate America—investment in existing hardware and software—virtually evaporates, while the Mac's inherent ease of use—and the resulting savings on training costs—makes it that much more attractive an option.

However, Apple is far from resting on its laurels. In a recent speech to the Software Entrepreneurs' Forum, Gassee discussed the future of Macintosh technology—what's going well, and what still needs to be done. The following remarks are excerpted from that speech.

When we brought out the Macintosh Plus a year ago, it was a big deal. It doubled the sales of the Macintosh. When we saw that, we decided to improve it again. Our theory is that when you have a successful product, you don't play with the formula, but you keep improving it.

We wanted to open up the Macintosh to third party developers, because we believe that good personal computers need to be perverted. I'm serious. Because if the computer manufacturer thinks that all the possible usages for the personal computer can be encompassed by the designers, they're very wrong.

We are in the business of getting third party developers to do things that we don't know how to do, that we couldn't even think of doing, don't have the time to do. We don't have the relationship with a given customer, with the different niches of the market.

It was pretty obvious two years ago what we needed to do. I saw the Apple II being successful in 1981, and then I saw another company take a translation of the concept and be very successful with it. But in the process something happened. Instead of operating in an environment where every bit of wisdom flows from one single human head, when we put the teams together at Apple we empowered the engineers to make a number of decisions, including improving on the original design. And that's how the Macintosh II became much better than I had imagined. That's how we got a video card and monitor that has the best video on any personal computer today,. That's how we got sound that totally surpasses what anybody does, and will do for the foreseeable future, on any other personal computer. That's how we got a bus structure that will carry us into new usages of personal computers, specifically a lot of good coprocessing and the things we can do on a lot of individual cards. That's how people came up with the idea that maybe we could put the Macintosh Toolbox as a sort of library for UNIX, so that you could have Mac-like applications in UNIX, instead of making the Mac UNIX-like, which is not exactly progress. We've made it so the same object code will run under Mac and under UNIX.

So what kind of new applications do we expect at Apple? I have to repeat that there are things we can't conceive of, because we are prisoners of our own limitations. We want to make computers so that people, by their work, free us from these deficiencies.

I think the most obvious applications for the new Macintosh will be scientific and engineering applications—a lot of graphics-based CAD, CAE. We designed the Mac II so you can have multiple video cards, you can mix and match black and white and color, and the application doesn't have to realize that. This is going to be, for some time, the only personal computer where you can write one application, not knowing anything about monitors, and the customer can create his own display system without touching anything in the application. The operating system will do that for you.

We have great hopes for NuBus, leading to new applications like powerful networking, powerful data acquisitions. That should take our personal computers into areas where they haven't been used .

But I'd like to go back to the *ordinary* applications. We're in the business of making people's lives simpler, not more complicated. Word processing isn't done yet. Spreadsheets aren't done yet. Databases—I don't want to belabor a painful point. Normal people cannot use most of the databases available on most personal computers. You need a Ph.D. in Manual to incorporate some of the features. The most successful databases are successful because they have the clergy, the dot-prompt programmers. We are not finding ways to help people conceptualize ways of managing large volumes of information. You hear about relational databases and stuff like that—customers don't care about that, they parrot the word because they're subjected to an intellectual terrorism, so they have to repeat those sacred words, that mantra. For most people, it doesn't mean that it'll help them manage information.

Desktop publishing—I think it's not done yet. It's too damn complicated—that's my opinion. To me, the most successful desktop publishing program is *MacDraw*, because real people can use it. I don't think most real people can use the desktop publishing programs.

The point I'm trying to make is that it's nice to talk about the whole new applications that will happen because of the new devices on the Mac II, but I think the existing applications should and will benefit even more.

MacWrite was a good word processor. We made a mistake by bundling it for too long, and therefore squelched the marketplace for some time.

I want a word processor that helps me write a business letter.

I want to use today's technology for tomorrow morning's product—and God will take care of the rest. There is more technology coming down the pike than we can handle. So let's not worry about the new technology—let's have fun. Fun to me is being of service to our customers. □

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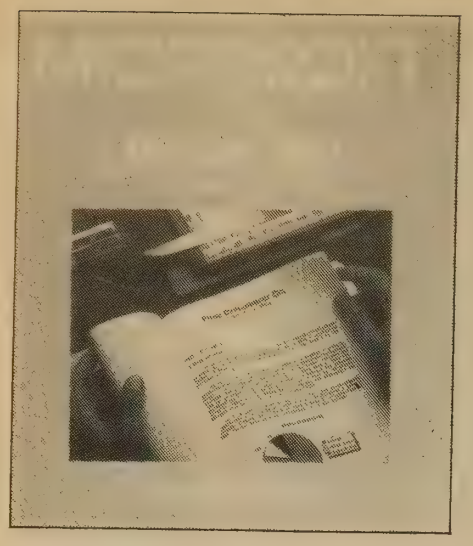


What's New With Word 3.0

By Frank Catalano

Whatever features you're looking for in a word processor, the new, powerful Microsoft *Word 3.0* probably has them. An integrated spelling checker? An outlining function? Footnote procedures? Custom menus? Sorting? On-screen help commands? An ability to create an index? Automatic line numbering? *Word 3.0* has all this and more.

However, features alone are not enough. If they are difficult to use, or if they perform inadequately, you may never use them. And in some cases, when you do use a specific command, you may wish you hadn't. All the features on *Word* are useful; some are easier to use than others.

New users will find *Word 3.0* appealing, since it can operate very well with simplified menus. The "Short Menu" mode displays menus very similar in appearance to those in MacWrite, with a spelling checker and full page view (Page Preview) option added. The "Short Menu" is adequate for short memos or letters, but you need to unleash the power behind the "Full Menus" option to quickly produce more complex documents.

Whatever features you're looking for in a word processor, the new, powerful Microsoft Word 3.0 probably has them.

FULL POWER WORD

Some of the more important features in *Word* allow numbering of lines in a document, searching characters to replace with graphics, linking documents for sequential printing, setting specific paper sizes for production on odd size sheets (including mailing labels), merging only select data to produce form letters, deleting disk files while working in the program, and saving files in seven different formats for easy transfer to other micros. And this is only the beginning.

Word makes extensive use of keyboard commands and the Mac Plus keyboard. Every command is available with or without the aid of the mouse. For example, you can select the menu bar using command-tab on the original keyboard, or by pressing the period on the keypad. Then you can select any menu command using a sequence of numbers and letters. It couldn't be easier.

A new option offers increased flexibility in formatting menu choices. When you make the format selection, you can instruct *Word* to "Apply" the formatting, but leave the dialog box on the screen for further changes. This is very helpful feature for making quick formatting changes to your document.

If it's speed you require in word processing, then the exceptionally fast *Word 3.0* is the best option. To quickly save documents, you can choose a "Fast Save" option. And repagination, although not automatic, is very fast. The best speed enhancement is that of the screen refresh, and scrolling is lightning fast.

OUTLINE VIEW

Since the outline is just a different view of the document, switching to the outline view is quick. While it is nice to have some basic word processing features in the outline mode, using this mode is more cumbersome than I'd like. This, however, is probably the worst thing about *Word 3.0*.

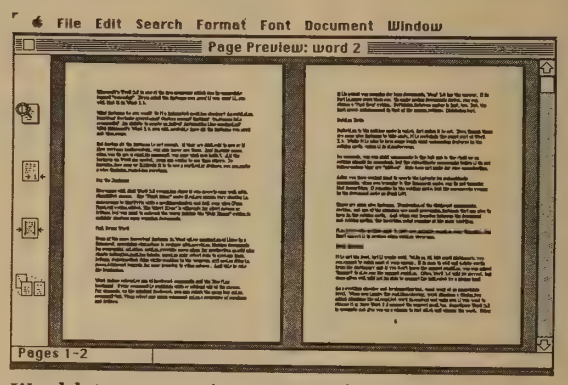
For example, when you're reorganizing paragraphs, as you are often required to do in an outline, sub-paragraphs do not follow unless they are "hidden." The alternative is to cut and paste all the paragraphs, but after using other outline programs which allow for simple clicking and dragging, this becomes annoying. The purpose of the outline view is to provide for easy organizing, but this particular implementation of the idea fails to make it easier than working in a regular document.

There is, however, a more serious problem. After you have worked so hard to organize the different paragraphs and sub-paragraphs, when you transfer to the document mode, the indentations are lost. They will appear again when you return to the outline view, but in the document view, all the paragraphs will appear as flush left. (You can correct this using Style commands, but it is not fun.)

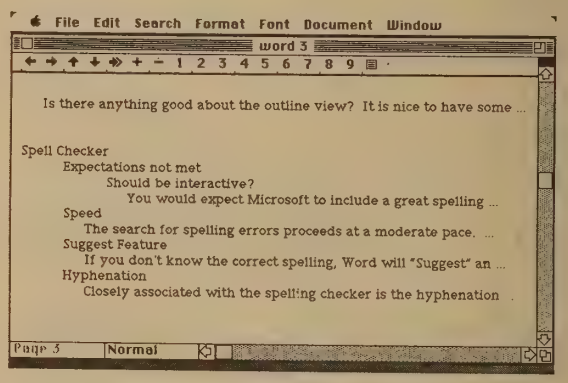
Is there anything good about the outline view? It is nice to have some word processing features available, it handles graphics very well, numbering of paragraphs is easy, and the use of glossaries is very convenient. Using the outline view is also a quick way to move through the document, but that's about it. The outline view is helpful, but it is not a substitute for a comprehensive outlining program.

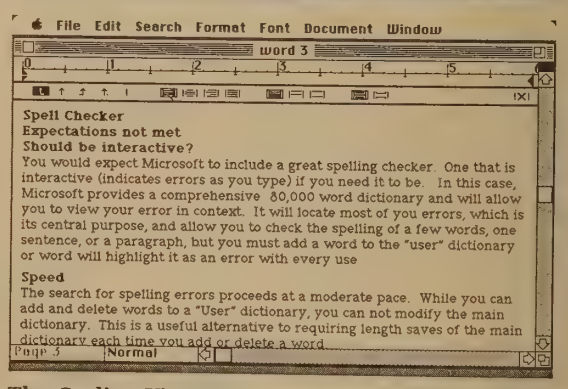
SPELL CHECKER

You would expect Microsoft to include a great spelling checker, one that is interactive (indicates errors as you type) if you need it to be. In this case, Microsoft provides a comprehensive 80,000-word dictionary and will allow you to view your error in context. It will locate most of your errors, which is its central purpose, and allow you to check the spelling of a few words, one sentence, or a paragraph, but if you want to use a word that's not



Word lets you preview pages side by side.


File Edit Search Format Font Document Window
word 3
Is there anything good about the outline view? It is nice to have some ...
Spell Checker
Expectations not met
Should be interactive?
You would expect Microsoft to include a great spelling ...
Speed
The search for spelling errors proceeds at a moderate pace. ...
Suggest Feature
If you don't know the correct spelling, Word will "Suggest" an ...
Hyphenation
Closely associated with the spelling checker is the hyphenation
Page 3
Normal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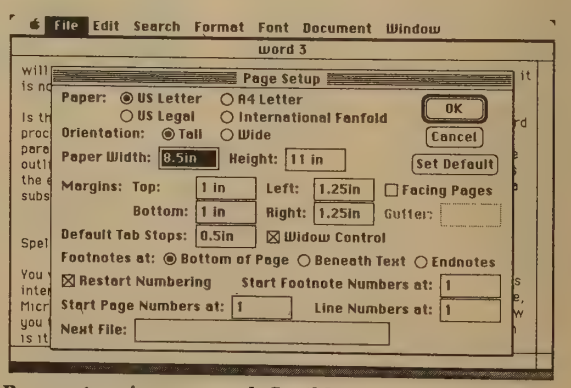
The search for spelling errors proceeds at a moderate pace. While you can add and delete words to a "User" dictionary, you can not modify the main dictionary. This is a useful alternative to requiring length saves of the main dictionary each time you add or delete a word.
Page 3
Normal

The Outline View option lets you switch back and forth between document and outline.


File Edit Search Format Font Document Window
word 3
Page Setup
Paper: US Letter A4 Letter
US Legal International Fanfold
OK
Cancel
Orientation: Tall Wide
Paper Width: 8.5in Height: 11 in
Set Default
Margins: Top: 1 in Left: 1.25in Facing Pages
Bottom: 1 in Right: 1.25in Gutter:
Default Tab Stops: 0.5in Widow Control
Footnotes at: Bottom of Page Beneath Text Endnotes
Restart Numbering Start Footnote Numbers at: 1
Start Page Numbers at: 1 Line Numbers at: 1
Next File:

Page setup is easy and flexible, accommodating a wide range of paper sizes.

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A - Turn on your Macintosh
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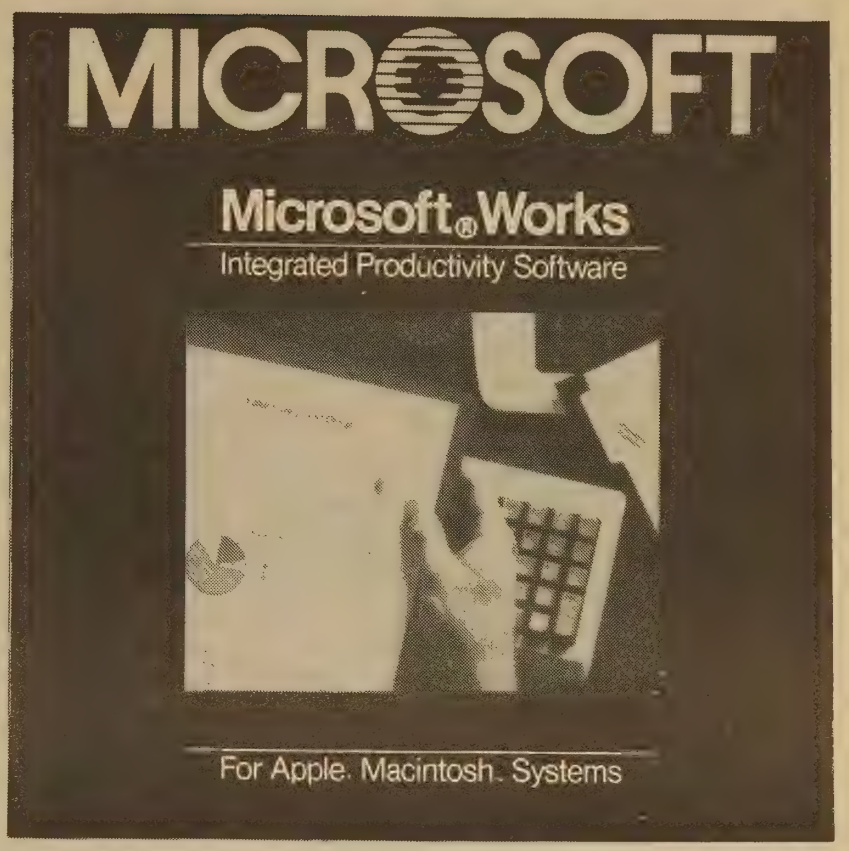

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in the dictionary, you must add it to the "user" dictionary, or *Word* will highlight it as an error with every use.

The search for spelling errors proceeds at a moderate pace. While you can add and delete words to a "User" dictionary, you cannot modify the main dictionary. This is a useful alternative to requiring lengthy saves of the main dictionary each time you add or delete a word.

If you don't know the correct spelling, *Word* will "suggest" an appropriate spelling. There are occasions when you know that the correct spelling is in the Main Dictionary, but *Word* cannot find it because you have committed a serious misspelling. *Word* does not allow you to scroll through the dictionary options.

Closely associated with the spelling checker is the hyphenation option. It works very well. With special characters, you can instruct *Word* to insert hyphens according to your specific needs.

PAGE PREVIEW

Page Preview may be *Word 3.0*'s most powerful feature. In this view, you can examine the overall page layout, including positioning of headers, footers, page numbers, and column formatting (which doesn't appear in the document window). The magnifying glass tool in the page preview window allows you to zoom in on any part of the displayed pages. Unfortunately, you are unable to edit at that point, and must return to the document window to make further changes.

Positioning headers, footers, and page numbers is incredibly easy. Just click on the page number icon, click again at the appropriate spot, and the page number will appear. If you know the exact location, if you click and hold the mouse button, the location will appear in the status box. When you release, the page number will remain at that location.

Margin settings are also available in the "Page Preview" view. When you click on the margin tool, the document appears with lines at the margins. You can then click on one of the margin lines and position it as you wish. Clicking outside the document area quick redraws the screen with your selected settings. This is a very simple and welcome feature.

STYLES

Styles commands are an easy way to format text. You define a style by selecting "Define Styles" from the Format Menu and setting the format options of your choice. You can position tabs using the ruler, or select character or paragraph formats from the Format or Font Menus. The settings you choose are stored with that document and can be easily recalled at any time. (It is also possible to store the setting for use in other documents).

Style settings only work on the paragraph or document level. If you would like to use a different style of type on the same line, you must use two different style commands. But don't let this distract you from the overall benefit of style commands.

TABLES OF CONTENTS AND INDEXES

While there's already been a certain amount of complaint about *Word*'s implementation of table of contents and index features, this portion of *Word* is undeniably useful and impressive.

You must indicate the words to be included in the index or table of contents by using dot commands. These commands need to be formatted as hidden text so that they appear only on the screen and not when printed, a formatting procedure that is not convenient and seems unnecessary. On the plus side, however, the speed at which the table of contents and index are created is wonderful.

DOCUMENTATION

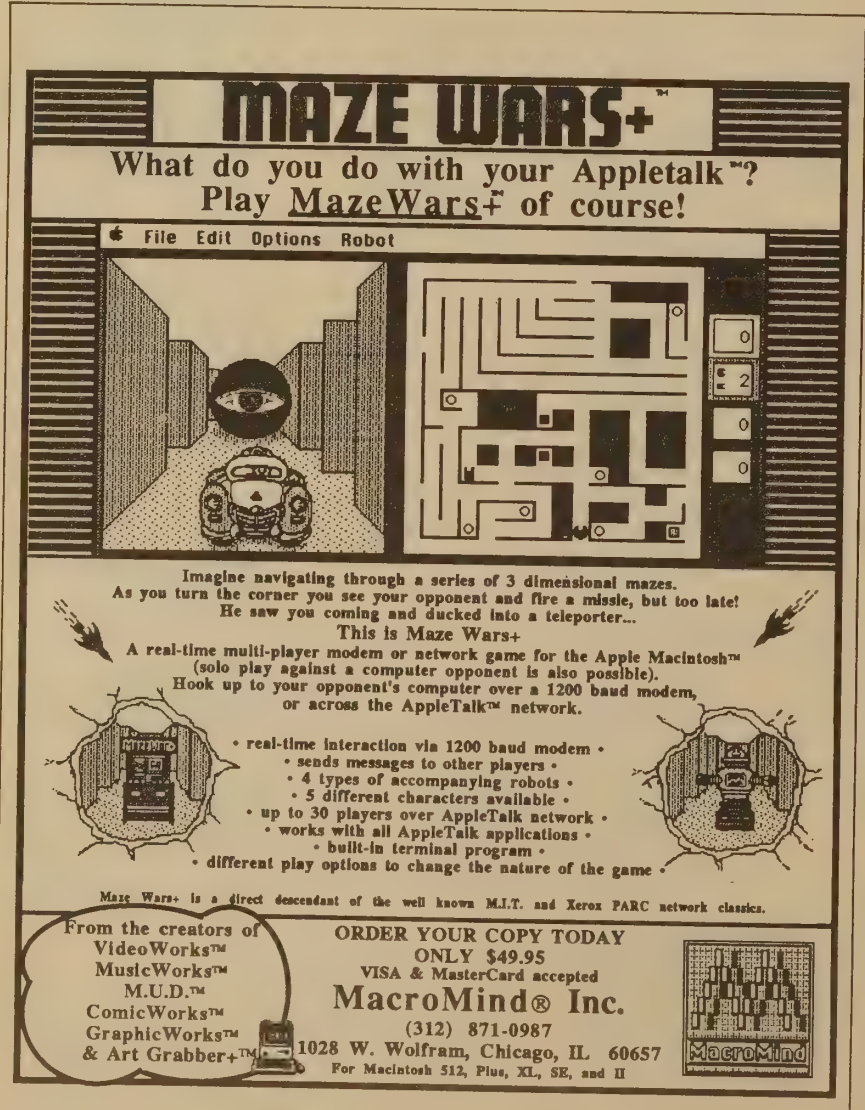
Word is a powerful but complicated program. Fortunately, Microsoft has provided us with an easy but complete tutorial and a comprehensive reference manual. To get started, you can follow the 140-page tutorial; to answer all your questions, you can refer to the 425-page reference manual. Even the index in the manual helps. With a program this powerful, you are bound to have questions. Both beginners and advanced users will appreciate the manuals.

CONCLUSIONS

This is only the beginning of *Word*'s features. It also includes a Switcher feature to allow automatic update of changes made in other programs operating with Switcher, mathematical formulas and calculations, sort features, complete footnote procedures, and convenient "Undo" and cancel commands. Then consider the excellent graphic cropping and resizing features, a full feature ruler, custom menus, and imbedded PostScript commands. Name your feature—it's probably here.

While some people have taken issue with Microsoft on this product, claiming that the company didn't make effective use of the Macintosh interface, I disagree. *Word* is a very complicated program, but it is extremely forgiving. With this much power under the hood, there is an inevitable potential for error.

Word is not perfect, but it is the most powerful word processor available on the Mac. Know its limitations and it won't disappoint you. I highly recommend it. □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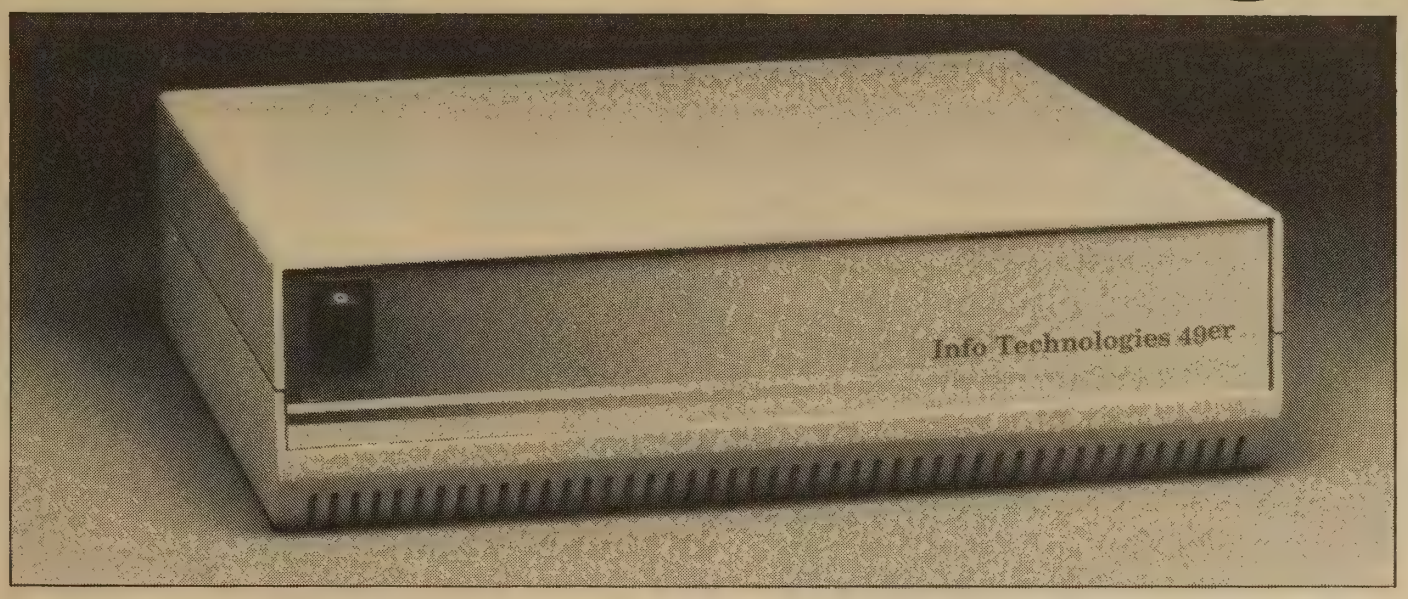

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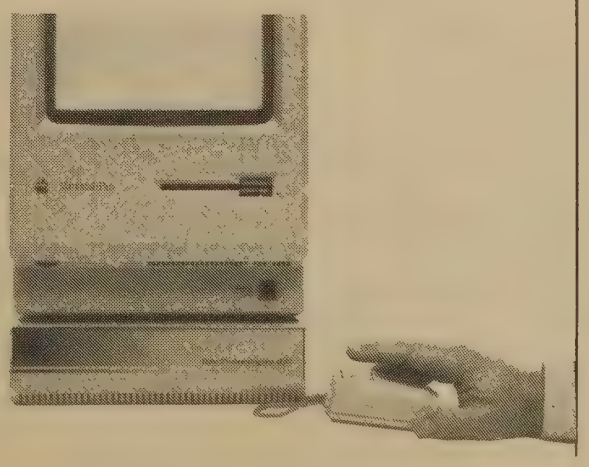

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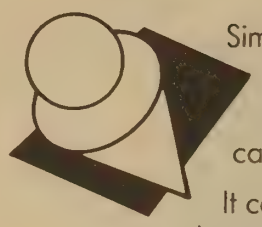

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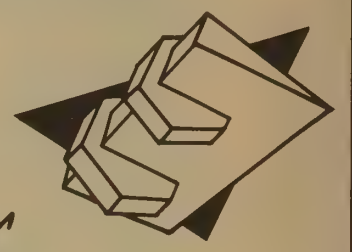

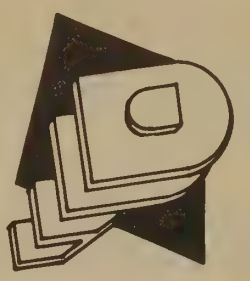

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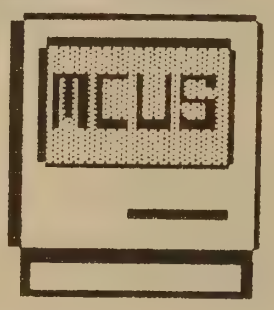

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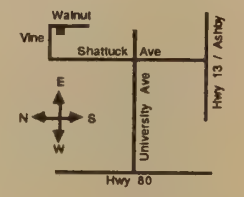

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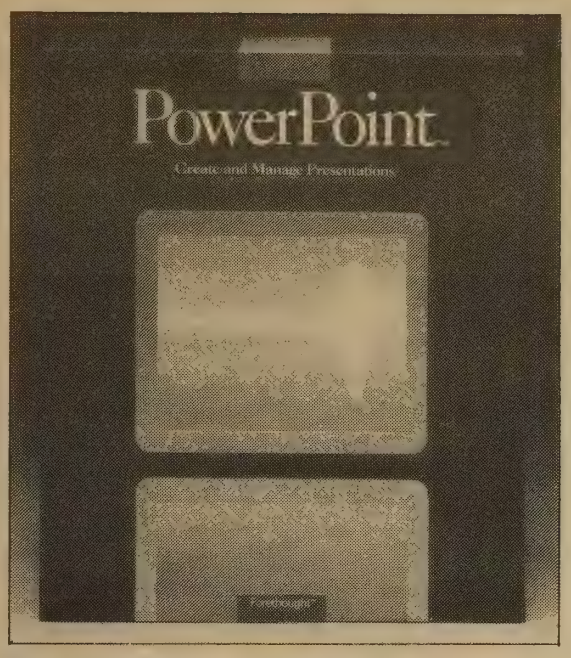


PowerPoint—Powerful Presentations

Forethought, Inc. has introduced *PowerPoint*, a software package designed to create and manage business presentations, complete with overhead transparencies, flip charts, speaker's notes and audience handouts. Included with *PowerPoint* is "The Guide to Powerful Presentations" and the Presentation Library, a disk full of pre-designed formats and slide layouts to assist users in preparing presentations with maximum visual impact. The program supports all standard slide sizes for all presentation formats. Call Forethought (408/737-7070) for further information.

Personal Typesetting On The Mac With TeXtures

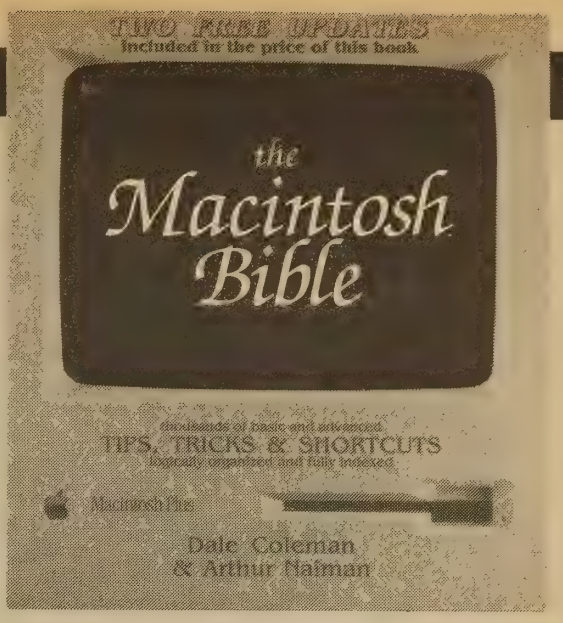
Addison-Wesley Publishing Company has announced the publication of *TeXtures*, an advanced personal typesettting software package for the Apple Macintosh computer. *TeXtures v1.0* combines the sophistication of the well-known *TeX* typesetting standard with the ease of use associated with the Mac. *TeXtures* lets users compose and typeset many types of material, and is particularly effective for typesetting mathematic formulae and scientific notation, as well as other complex forms of text. The program offers the ability to typeset documents up to several thousands of pages in length. Suggested retail is $495; for more information call Addison-Wesley at (617) 944-3700.

Desktop Express

Apple Computer, Dow Jones & Co. and MCI Communications have jointly announced *Desktop Express*, a new desktop-communications product that allows users to send and receive graphics between remote locations. The software uses the Mac interface, and is the result of a joint development between the three companies. Sharing of graphics and text is done via MCI Mail. There are three communications options: Mac to Mac, hard-copy delivery, and text messages across environments. For information contact Apple Computer at (408) 996-1010.

The Ultimate Reference

The Macintosh Bible, by Dale Coleman and Arthur Naiman, offers thousands of useful hints on using your Mac. It offers detailed and specific advice on such matters as system software and utilities, application programs and hardware, as well as tips for future purchases. The book sells for $21; the price includes two free future updates. Inquiries should be directed to Goldstein & Blair, Box 7635, Berkeley, CA 94707, (415) 524-4000.



Mac For Thoroughbreds

One of the more unusual vertical-market applications for Macintosh is *MacHorse*, a complete package (available as a complete turnkey system, if desired) for horse-farm businesses. In addition to a powerful *Omnis 3*-based database, *MacHorse* offers comprehensive mailing and accounting pro-

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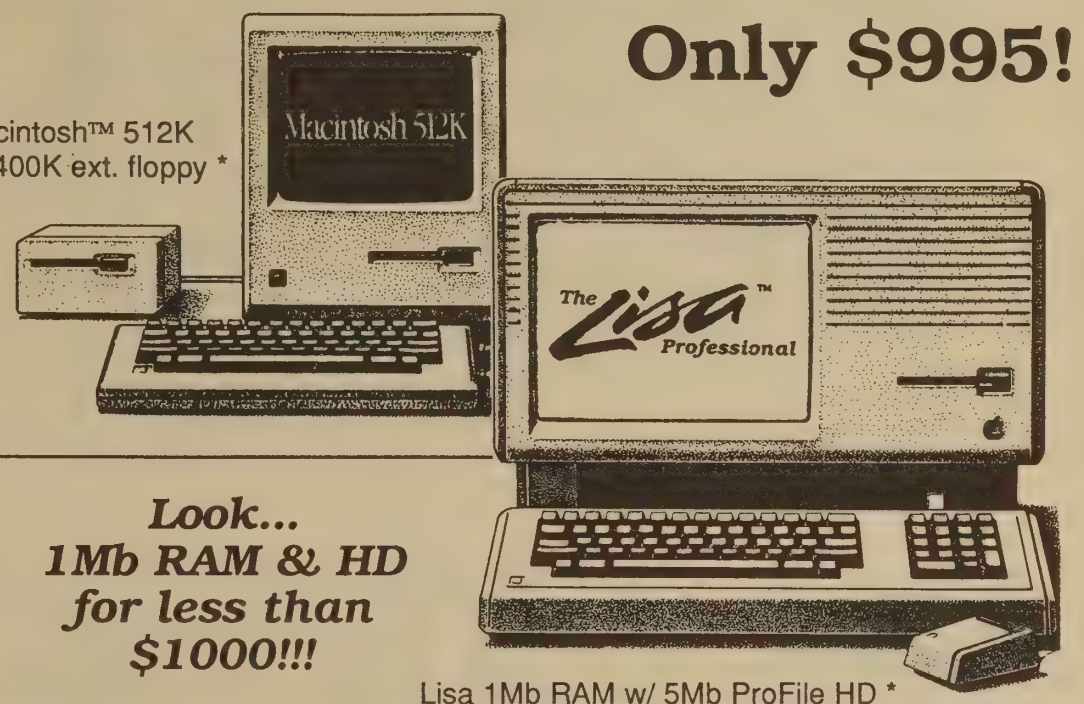

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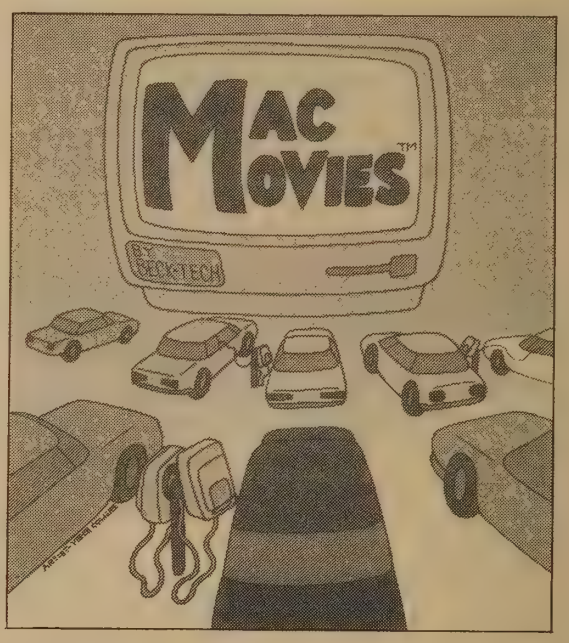
grams. Further, it includes all the software options a horse breeder will need for keeping track of health, training, breeding and racing records—all in the user-friendly Macintosh environment. It can also work with *MacWrite*, *MacPaint* and *Dollars And Sense* for particular tasks. So if you'd like to spend more time with your horses and less with your computer, check this package out. *MacHorse* is published by Dapple-Tech Inc., P.O. Box 220, Laurel, MD 20707, (301) 792-2735.

Handy Desk Accessories

SmartScrap and *The Clipper* are two desk accessories that facilitate handling of graphics in the Mac environment. *SmartScrap* replaces the Scrapbook function, enabling you to find pictures easily with a pictorial table of contents, see all of large pictures by using a scrolling function, select any rectangle of a scrapbook picture for easy copying, and much more. It also works with existing Scrapbook files. *The Clipper* is a cropping and scaling tool; it lets you trim and scale pictures to the exact dimensions of the spot you're going to paste them into. It will also let you see the contents of the Clipboard, even in applications that don't support Show Clipboard. Information is available from Solutions International, 29 Main St., P.O. Box 989, Montpelier, VT 05602, (802) 229-9146.



The Animated Mac

Beck-Tech's *MacMovies* converts the Macintosh to an inexpensive, high-quality video production workstation. It works in conjunction with existing tools like *MacPaint*, *SuperPaint*, *FullPaint*, *Easy3D*, *Thunderscan* and *MacVision* to produce sophisticated animated video. New techniques for file compression allow images to be condensed for rapid playback and efficient use of available memory. Movies can be run at speeds up to 30 frames per second. For more information contact Beck-Tech, (415) 548-4054.

Efficient Data Retrieval System

MARS 2 is an electronic document archival and retrieval system that provides a total solution to the ongoing problem of document storage. It takes advantage of such devices as scanners, write-once optical disks, LANs and file servers to provide power with the Mac's renowned ease of use. It includes three levels of security protection, and can be customized to particular environments if desired. For information contact Micro Dynamics, Ltd., (800) 634-7638.

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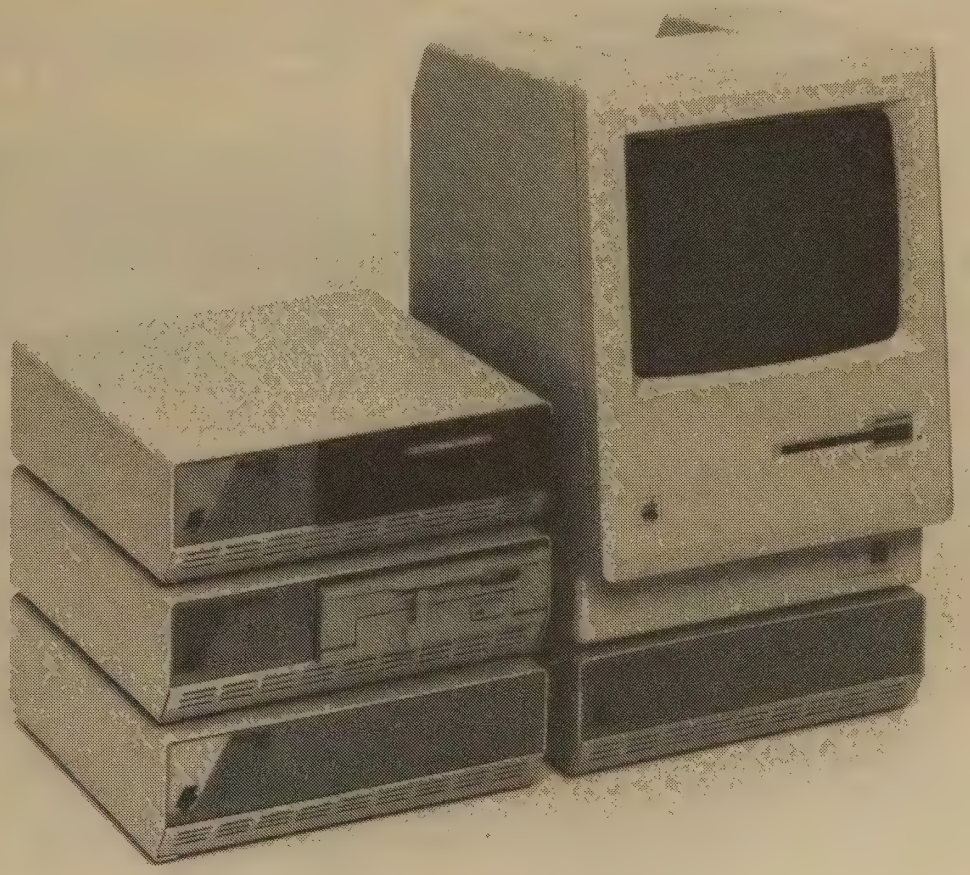

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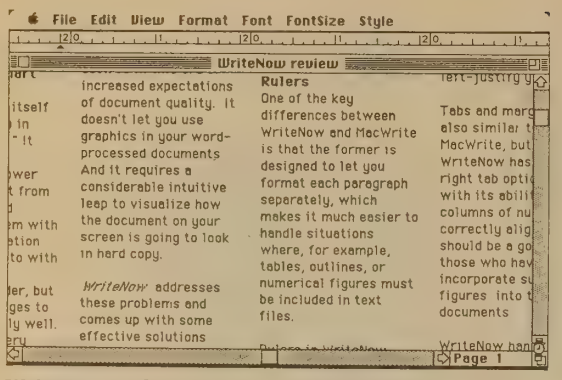
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Rulers
One of the key differences between WriteNow and MacWrite is that the former is designed to let you format each paragraph seperately, which makes it much easier to handle situations where, for example, tables, outlines, or numerical figures must be included in text files.
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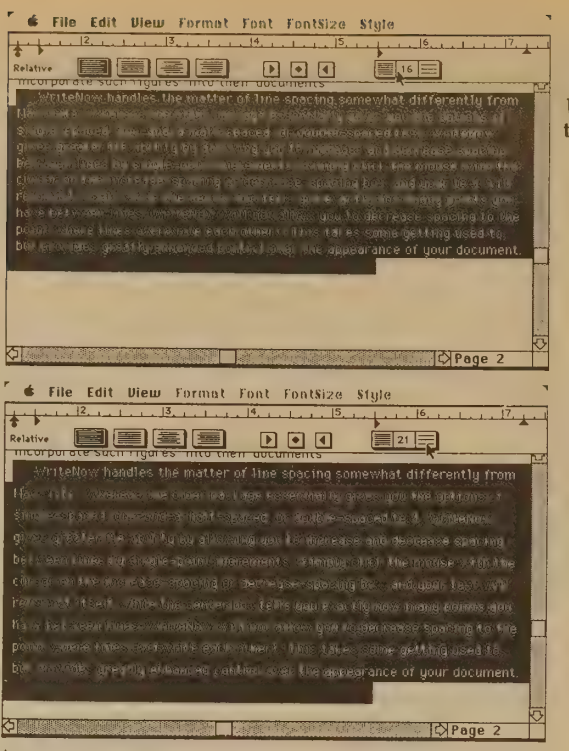
***WriteNow* makes it easy to format text in up to four columns.**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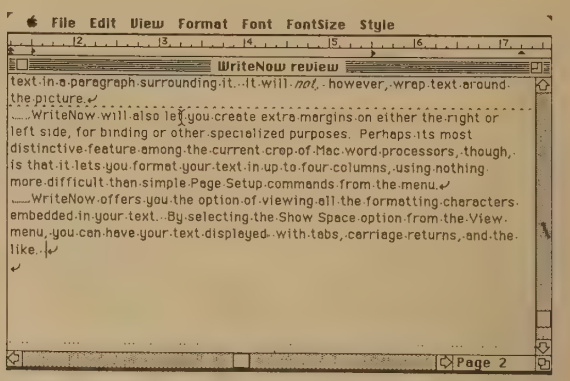
Page 2

***WriteNow* offers flexible line spacing: shown here, the same paragraph at 16 point and 21 point spacing.**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WriteNow review
text in a paragraph surrounding it. It will *not*, however, wrap text around the picture.
WriteNow will also let you create extra margins on either the right or left side, for binding or other specialized purposes. Perhaps its most distinctive feature among the current crop of Mac word processors, though, is that it lets you format your text in up to four columns, using nothing more difficult than simple Page Setup commands from the menu.
WriteNow offers you the option of viewing all the formatting characters embedded in your text. By selecting the Show Space option from the View menu, you can have your text displayed with tabs, carriage returns, and the like.
Page 2

By selecting Show Space from the View Menu, you can see and edit hidden formatting commands in your text.

One feature that will be a godsend to those who need to conserve disk space is the SaveCondensed option, which will compress the file into the smallest possible size.

NOT ALL GOOD NEWS

Good as this package is, it has a few less-than-ideal elements.

Perhaps the most annoying, at least for those who have to work on documents generated by a variety of word processing programs, is the awkward way in which file conversion is handled. *WriteNow* does not allow you, for instance, to save a document as a text-only file; in order to accomplish this, you must exit *WriteNow* and open up its ancillary application Translator, which will convert *MacWrite*, *Word*, or ASCII files to *WriteNow* and vice versa. If this is the only word processor you're ever planning on using, this won't be a problem, but it's a serious inconvenience otherwise.

Also, while *WriteNow* gives you the option of printing in the background, this feature isn't as useful as it could be; I found that the background printing stopped the minute I closed the document, and when I typed additional text while the original document was printing, response — even with a SCSI hard disk — was sluggish in the extreme.

These, however, are fairly minor complaints. On the whole, *WriteNow* offers increased control over your documents and incorporates many useful features while not sacrificing the ease of use that distinguished the Macintosh. All in all it's a very good package and a portent of better things to come. If you've been chafing at the limits imposed by *MacWrite*, give *WriteNow* a try. (*WriteNow* is published by T/Maker Company, 1973 Landings Dr., Mountain View, CA 94043, 415/962-0195. Suggested retail $175. The program works on all Macs, including 128K models.) □

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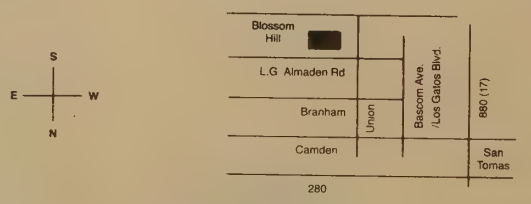

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MicroPro Promises New WordStar For CP/M

By Serge Timacheff

In a world dominated by MS-DOS, the CP/M user has a hard time finding new software. It's noteworthy, then, that one of the leading software publishers in the DOS world should commit itself to a CP/M version of its best-selling package.

MicroPro recently released an updated and substantially enhanced version of *WordStar* for DOS machines. Upon careful consideration, the company has decided to release a version of *WordStar* 4.0 for CP/M. Those who regard the older operating system as an outmoded relic may find this surprising, but according to Lee Lensky, MicroPro Public Relations Manager, the new product addresses the needs of a significant market. "We continually hear, without any prompts, from CP/M users that they want an update," he says. "About three months ago I mentioned the possibility of doing a CP/M update in the Osborne Users' Group newsletter. Since that time, I've been getting 10 to 20 pieces of mail a day saying 'I'll buy it.' The best estimates I have say that there are between 2-300,000 CP/M machines out there, at least. I know that about 40 percent of those use word processing, most of them with *WordStar*. People have an investment in that—in both systems and in MicroPro, and we feel a responsibility to get back to fulfilling our obligation to them."

THE CP/M FACTOR

The new *WordStar* is the result of an unusual merger in which MicroPro acquired NewStar Software, a company started by MicroPro veterans led by Stan Reynolds. Under Reynolds' direction, NewStar marketed its own word processing package, *NewWord*, a *WordStar* "clone" which received critical praise and commercial success as easier to use and better supported than the MicroPro product. In the wake of NewStar's acquisition, Reynolds and many of his team have returned to MicroPro, where they play an essential role in the development of the new *WordStar*.

Both MicroPro and NewStar historically supported the CP/M market, even though the "progressive" MS-DOS crowd chided them for trying to feed a corpse. For them, at least, it works—both companies have succeeded in profiting from the CP/M following, and have served it well while dozens of other software companies chose to forsake the eight-bit users.

MicroPro promises a CP/M *WordStar* upgrade, Version 4.0, by the end of this year. Since the DOS version required extensive rewriting, the CP/M version is expected to involve a similar effort.

Former *NewWord* Product Development Vice President Peter Mierau supervises the CP/M upgrade effort, just as he did for MS-DOS. Mierau was the *NewWord* 3 engineer for both MS-DOS and CP/M, as well as for other NewStar products.

Interestingly, Lensky maintains that the CP/M *WordStar* 4.0 will not necessarily be MicroPro's last word in the CP/M marketplace. "We're committed to keeping this product alive. To rule out any further upgrades at this point would be contrary to what we've been saying. We're going to get this one update out for CP/M and see what the reactions and responses are." However, users of CP/M 80 and CP/M 86, which have now been withdrawn from the market permanently, will probably have to do without—although the internal discussion of the issue is far from over, the current consensus at MicroPro is that the company could not profit from selling software for these systems.

Reynolds himself takes a positive but cautious view on the issue of CP/M commitment "I believe in a *modest* commitment, but I don't want to end up spending several hundred thousand dollars in the process.

"Let me badmouth the people who were saying that nobody supports CP/M," he continues. "They're wrong. They're entirely and completely wrong. What *is* true is that the CP/M marketplace isn't buying anything. NewStar made the product and sold it as best they could, but there was a very small market for CP/M with people flocking to the IBM because of its standardization. And the people that do have CP/M machines are not willing to pay money.

"Nobody understands better than the software companies how hard it is to make and support software and still profit. It's almost impossible to make a $99 software product unless you sell it by the thousands and don't support it very much."

Currently, the upgrade from *any* version of *NewWord* or *WordStar* to *WordStar* 4 will cost $89 plus $5 shipping and handling. Brand new, it costs $495. Lensky also says the CP/M upgrade *may* cost less than the MS-DOS version, but no final decision has been made.

MicroPro hopes that as many as 95% of CP/M computer owners will buy the upgrade, offered to *NewWord* and *WordStar* owners alike. Yet to be decided are the new features for the CP/M upgrade and which systems will be supported. "We want to hear from people," says Lensky.

NEW FEATURES

MicroPro has yet to decide on new CP/M features, but some features are a good bet for eventual inclusion. Portions of *NewWord* 2.17 (the last CP/M version) that didn't exist in earlier versions of *WordStar* are likely to appear in *WordStar* 4.0. For MS-DOS, the *WordStar* upgrade contains an undelete command, on-screen boldfacing and underlining, better and more extensive printing support, and MS-DOS subdirectory capabilities. The *WordStar* spelling corrector and the WordFinder Thesaurus are included in the new version. The NewStar indexing and table of contents generator, which, according to Lensky, "is not quite as sophisticated as ours was, but is a hell of a lot easier to work with," is also part of the deal. The program will also offer an auto-patcher and a detailed customization menu to allow users to make installation patches from a menu instead of having to struggle with the actual code.

Reynolds says there may even be some "quasi-graphics" for CP/M: "In some sense, the box- or line-drawn characters that *WordStar* 4 supports for MS-DOS aren't actually graphics—we're just using the extended character set. That would be something that could be put into the CP/M version, but it would be very terminal dependent, of course."

USER SUPPORT

A big part of the upgrade effort involves user support. "We've got about a $300,000 investment in new data processing support systems in customer service for record and product tracking," says Lensky. "The phone staff has doubled since 1986 and we're continuing with free service. We've also added a premium service, which gives you a toll-free number and unlimited calling with about a two minute response. That costs $65 for six months and $90 per year." *WordStar* also instituted a 90 day warranty policy which, in addition to covering defective media, gives your money back if the product does not perform as MicroPro says it will. During the 90 days, you have access to a free priority support line that also sports two minute service. Large corporate support policies are also available. If you don't ask for help soon after purchasing, you only get 45 days of free support instead of the 90, so it's worthwhile to call with any kind of a question to activate the 90 day plan.

Meanwhile, it's expected that the *WordStar* documentation, a work of legendary excess verbiage and opacity, will follow the *NewWord* style of simpler and more direct communication.

A TOUGH MARKET WITH FEW COMPETITORS

The decision to support CP/M gives MicroPro a virtual monopoly in the CP/M word processor market. Other popular and successful CP/M word processing manufacturers of the past, such as Palantir, Inc. in Houston, installed thousands of eight-bit programs until two or three years ago. They now have withdrawn from the market, and shy away from possible reentry. Much of their reasoning has to do with support difficulties and the fact that CP/M is far from standardized. Nonetheless, both MicroPro and NewStar, prior to its acquisition, have shown a profit in CP/M sales.

The future is probably in the hands of the CP/M user community. If MicroPro feels that hundreds of thousands of CP/M users are eager for an update, perhaps there's still enough pie for others to have a slice. Perhaps the software companies' complaint that none of the CP/M users "are buying" is a double-edged sword—why go shopping when there is so little to buy?

In any event, with a little luck, the CP/M *WordStar* upgrade will be out soon and will fulfill a long overdue promise. □

Copyright ©1987 by Serge Timacheff. *Serge Timacheff is a writer living in Alameda, CA, and is the Managing Editor of the* Morrow Owners' Review *and a partner of Exposure Public Relations. He has worked in the media and the software industry for ten years.*

CP/M Upgrade: Your Comments Invited

Make yourself known! Tell MicroPro what features you want to see in the CP/M *WordStar* upgrade and what system(s) you want supported. MicroPro wants to hear from you even if you're just voicing your opinion about the CP/M upgrade in general. Write directly to:

Lee Lensky
CP/M Update
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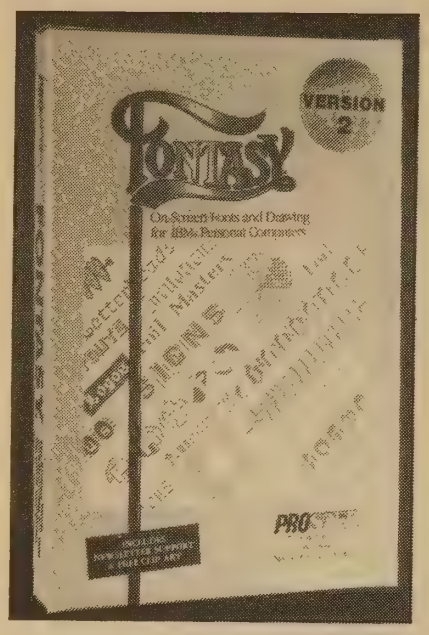

FONTASY
Affordable Personal Publishing

By Lenny Bailes

Fontasy is one of a series of graphic publishing programs created for the PC before the high-end desktop publishing market began to cross over from the world of Macintosh computers.

Fontasy combines the font capabilities of programs like *Fancy Font* or *Bradford*, the banner and greeting card capabilities of *Print Shop*, the newsletter capabilities of *Newsroom Pro* and the certificate making capabilities of *Certificate Maker*. It can produce printed material which is at least equal in quality to pages generated by these programs in any of their modes. In *Fontasy*, however, the templates and formats must be programmed by the user.

Fontasy is designed primarily for use with dot matrix printers. It will support the HPLaserjet and Laserjet Plus, but the memory requirements of graphics printing with these printers limits capabilities. If you want full 300-dot-per-inch resolution, you can only print part of an 8½″×11″ page at one time. Epson FX and LX dot matrix printers, however, have a quadruple density (240-dot-per-inch) capability which allows full page printing. *Fontasy* has drivers for most standard dot matrix printers, including the Epson, Star and Brother families, C. Itoh, Toshiba, Okidata and others.

SYSTEM REQUIREMENTS

Fontasy requires MS DOS 2.0 or 2.1 (with IBM patches installed) or higher. It also requires 256K-640K of memory. The more memory you have, the better—it takes 400K to edit a complete page. With 256K to 400K you have to edit and save partial pages, then print them one after another to make a complete page. Above 400K, each additional 50-60K allows you to edit another page in memory. With 640K five pages can be loaded and worked on simultaneously. Both Mouse Systems and Microsoft mice, serial and bus are supported, but not required.

FEATURES

The system disk that comes with *Fontasy* contains the main program, installation program, printer overlays, help screens, and most of the 28 printer fonts. The accessories disk contains additional printer fonts, clip art, and utilities which allow you convert *Basica* drawings to *Fontasy* blocks, and vice versa. With several public domain programs you can also capture pictures from *any* screen in graphics mode and make them into *Basica* B/SAVE files or *Fontasy* blocks. This allows you to edit graphics from any other program you own by transferring them to *Fontasy*.

The instruction manual is a 260-page paperback which takes you step by step through the program's capabilities. You start by typing your name in Gothic, Standard, and Calligraphy fonts, then print it out. You set some margins and enter text in whatever font you wish. Next, you learn how to lay out rectangles and circles, along with drawing on-screen with cursor or mouse. You are then taught how to transfer art to the screen, how to magnify or reduce the text or the art, and move both around the screen in blocks. Finally, you learn how to read in ASCII text created by another word processor and to create multi-column templates for newsletters, along with positioning your graphics and banners.

The text will naturally flow and format around pictures and banners and into columns, just as with Aldus *PageMaker* and *Ventura Publisher*. The ASCII text can be read in so that each page is automatically printed in fixed format or saved to disk as the next page is loaded. You can also decide after each page is loaded whether you want to edit it, print it, change template or save it to disk.

Fontasy allows you to play with the individual fonts, set line height, space between characters, kerning, justification, etc. You can vary the point size, and, with quadruple density graphics, thicken or thin the resolution to eliminate blockiness.

You might ask yourself, with all of these options, what you'll get when you're through. Will you get something "computerishly cute" with jagged little squares and dots, or something that looks like a professionally published page in a magazine?

The answer is that what you get will fall between these two endpoints. I've found at least four or five pleasing font setups which look almost as good as a daisy-wheel if they

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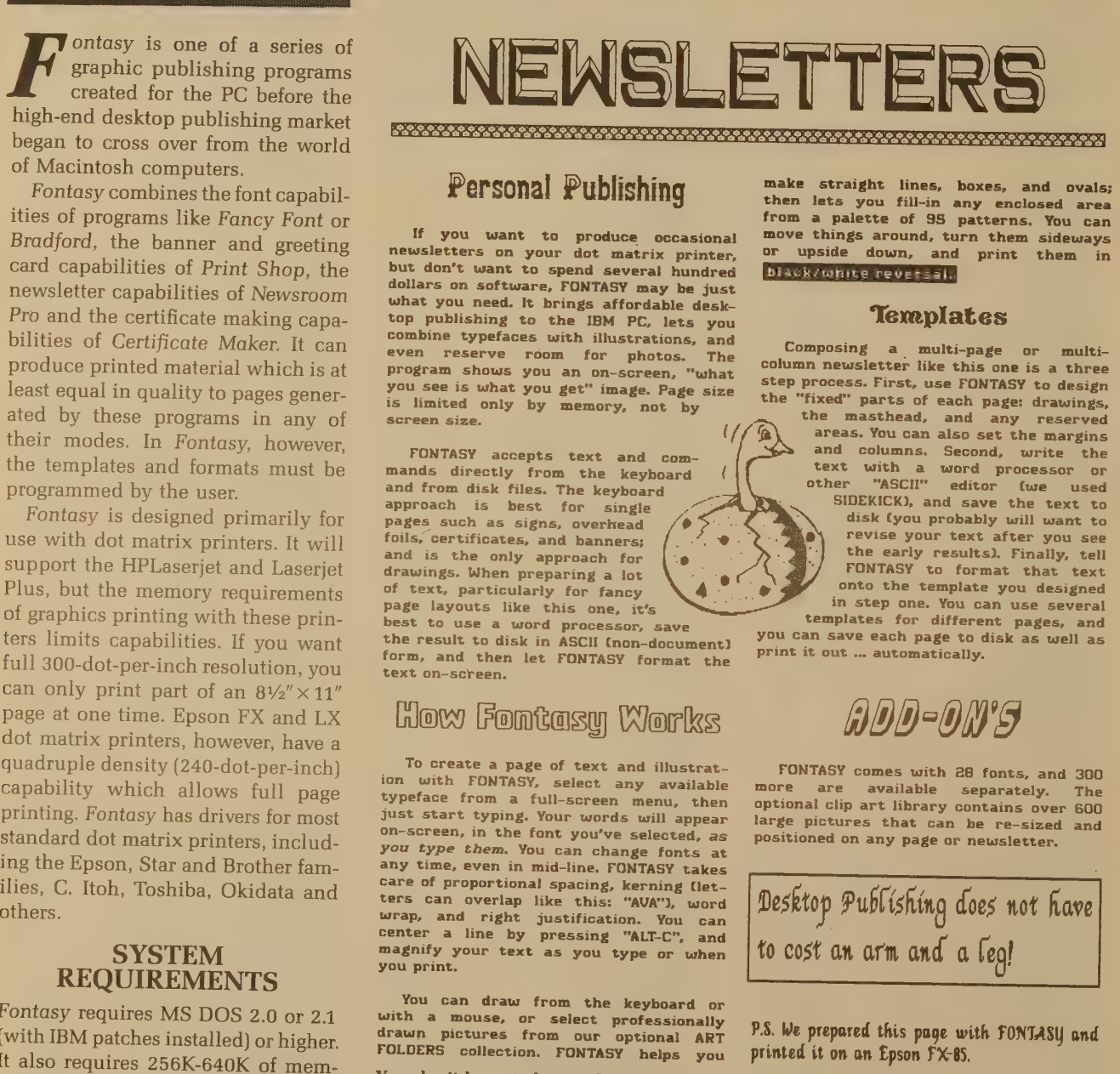
NEWSLETTERS
Personal Publishing
If you want to produce occasional newsletters on your dot matrix printer, but don't want to spend several hundred dollars on software, FONTASY may be just what you need. It brings affordable desktop publishing to the IBM PC, lets you combine typefaces with illustrations, and even reserve room for photos. The program shows you an on-screen, "what you see is what you get" image. Page size is limited only by memory, not by screen size.
FONTASY accepts text and commands directly from the keyboard and from disk files. The keyboard approach is best for single pages such as signs, overhead foils, certificates, and banners; and is the only approach for drawings. When preparing a lot of text, particularly for fancy page layouts like this one, it's best to use a word processor, save the result to disk in ASCII (non-document) form, and then let FONTASY format the text on-screen.
How Fontasy Works
To create a page of text and illustration with FONTASY, select any available typeface from a full-screen menu, then just start typing. Your words will appear on-screen, in the font you've selected, *as you type them*. You can change fonts at any time, even in mid-line. FONTASY takes care of proportional spacing, kerning (letters can overlap like this: "AVA"), word wrap, and right justification. You can center a line by pressing "ALT-C", and magnify your text as you type or when you print.
You can draw from the keyboard or with a mouse, or select professionally drawn pictures from our optional ART FOLDERS collection. FONTASY helps you make straight lines, boxes, and ovals; then lets you fill-in any enclosed area from a palette of 95 patterns. You can move things around, turn them sideways or upside down, and print them in black/white reversal.
Templates
Composing a multi-page or multi-column newsletter like this one is a three step process. First, use FONTASY to design the "fixed" parts of each page: drawings, the masthead, and any reserved areas. You can also set the margins and columns. Second, write the text with a word processor or other "ASCII" editor (we used SIDEKICK), and save the text to disk (you probably will want to revise your text after you see the early results). Finally, tell FONTASY to format that text onto the template you designed in step one. You can use several templates for different pages, and you can save each page to disk as well as print it out ... automatically.
ADD-ON'S
FONTASY comes with 28 fonts, and 300 more are available separately. The optional clip art library contains over 600 large pictures that can be re-sized and positioned on any page or newsletter.
Desktop Publishing does not have to cost an arm and a leg!
P.S. We prepared this page with FONTASY and printed it on an Epson FX-85.

You don't have to have a laser printer to design and print sophisticated-looking documents.

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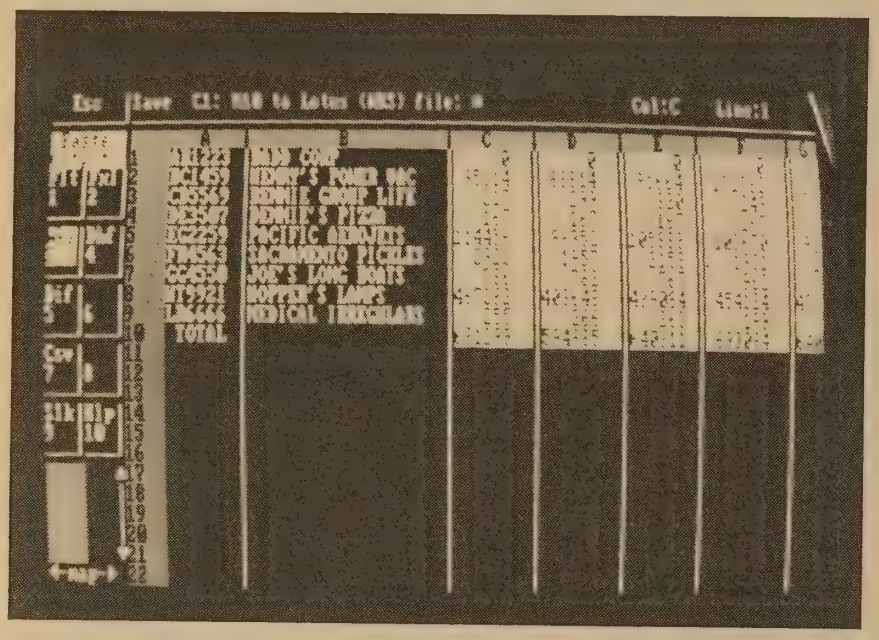
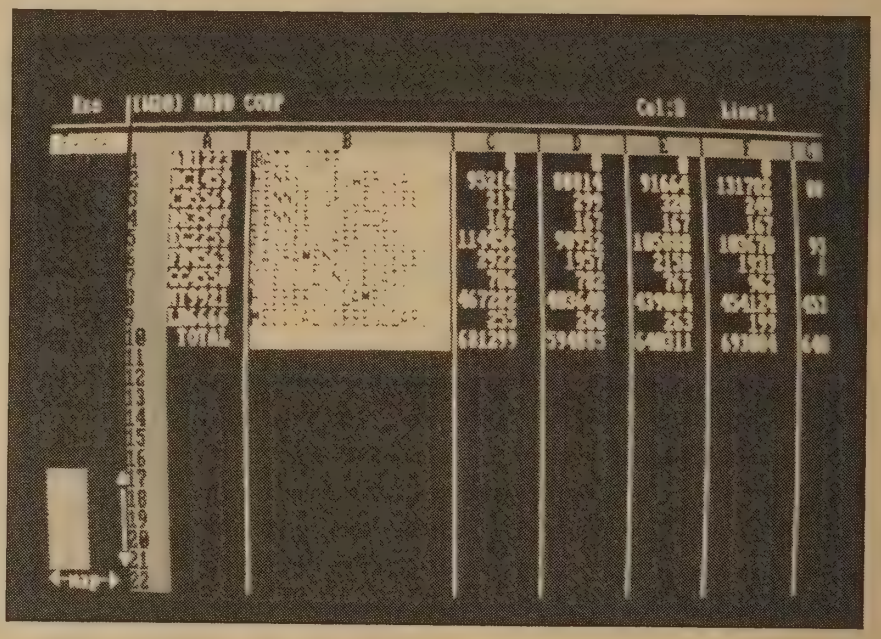
MACROPIK'r

Moving data between incompatible file formats? No problem. . .

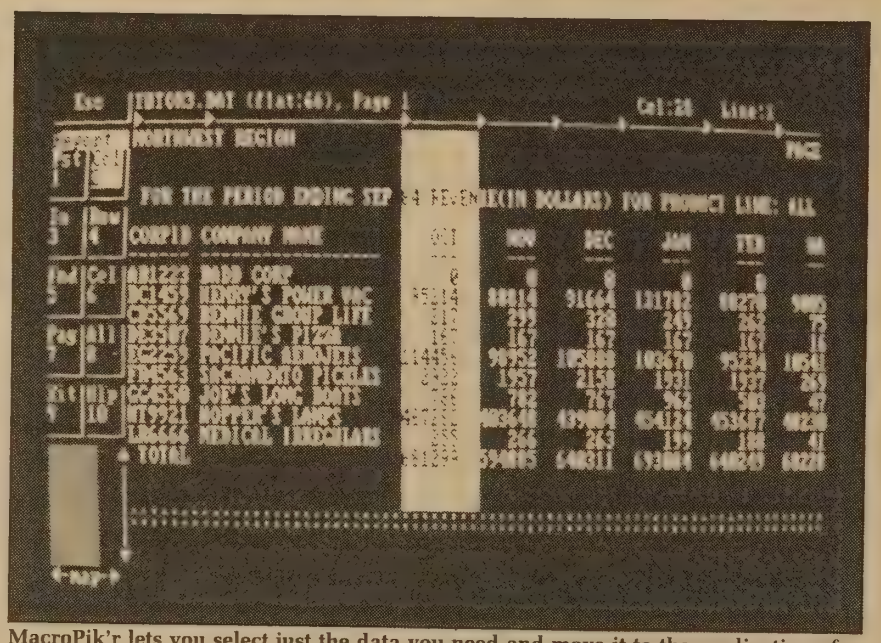
By Woody Liswood





You've just finished the entering and editing of a massive amount of data into your database. You are now ready to analyze the data, in a standard ASCII Comma Delimited File, using *Lotus 1-2-3*. Your file contains both text and numeric information, and you want to load it into *1-2-3*. You have already created, in *Lotus*, a spreadsheet template to analyze and manipulate the data. The problem is that if you just import the data as numeric, *Lotus* ignores the text information; if you import the data as text, then *Lotus* places each separate line into the first cell as a text entry.

Macropik'r, from Samkhya Corporation, can solve your problem. Quickly load the file into the input area of *Macropik'r*. A quick press of F8 selects all the information in that area. Next, an F1 moves the data into the program's output area. While moving this information, *Macropik'r* selects the breaks between the data as logical columns and presents the file to you in a row-and-column format. An F3 selects the output menu. Another F3 selects the *Lotus* ".WKS" format. You enter a file name which includes the .WKS, and *Macropik'r* writes the file for you.



MacroPik'r lets you select just the data you need and move it to the application of your choice.

Now exit *Macropik'r* and boot *1-2-3*. After loading your template, move the cursor to the start of the range where you want the data. A FILE COPY ALL adds the data to your worksheet, numerics as numerics, text as text. The entire process takes two or three minutes.

If you know that you will be transferring this same type of data each week for the foreseeable future, remember to press a Control-R before you start your series of keystrokes. This will cause Macropik'r to keep a list of your keystrokes in a separate file with an ".MP" extension.

Perhaps you called your macro file MOVE. *Macropik'r* is run by keying in MPKIRBW. Next time you run the program, start by keying MPKIRBW @MOVE. This tells Makropik'r to run the instructions found in the @MOVE macro file. This time everything runs automatically. In a few moments you have a worksheet ready to load into *1-2-3*.

PROGRAM CAPABILITIES

Macropik'r solves the vexing problem of transferring data between programs which have different file formats. Some programs have a limited ability to read in different file formats. Very few programs will read and write in other formats. And none of these programs seem to be able to read and write in the format you need at the time.

Macropik'r reads and writes files in a standard ASCII file format which its publishers call a FLAT file format. It also reads and writes *Lotus 1-2-3* and *Symphony* files, Comma Separated Value files produced by many data base programs, SYLK format files produced by *Multiplan* and other Microsoft products, DIF files produced by *VisiCalc* and multitudes of other programs, and .DBF files from *dBASE III* and *III PLUS*. Since just about every program produces at least one of these file types, you should now be able to use *Macropik'r*

continued on page 93

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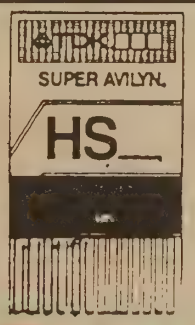

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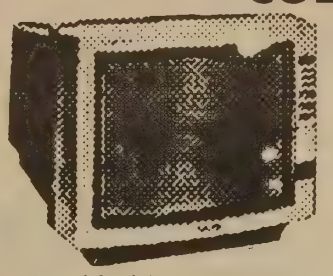

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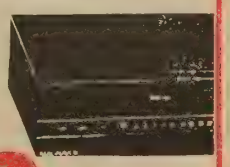

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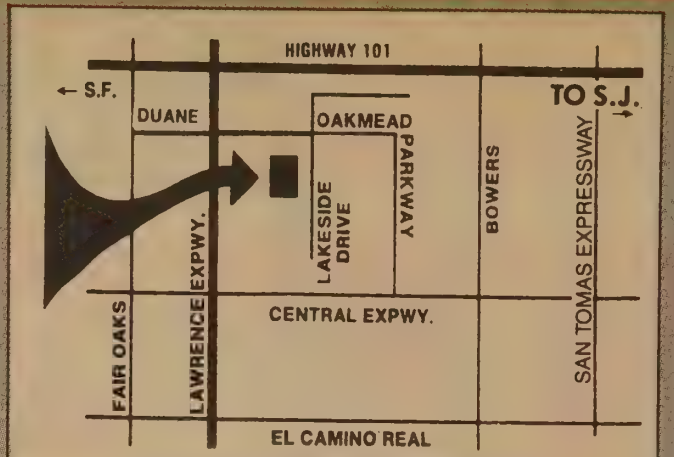

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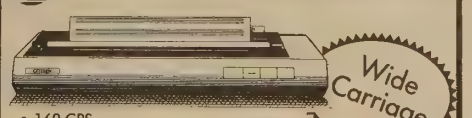

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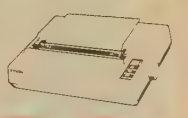

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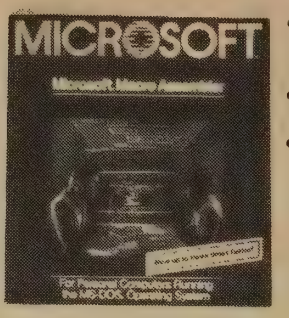

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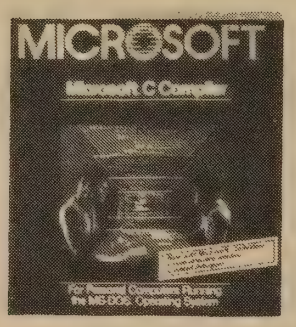

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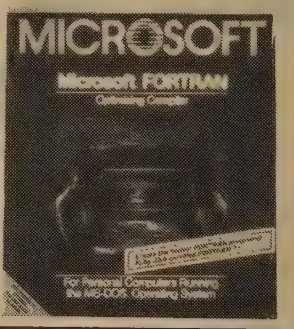

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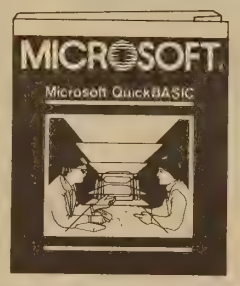

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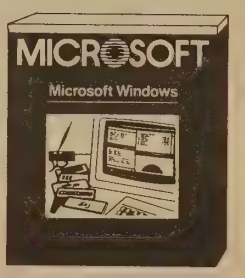

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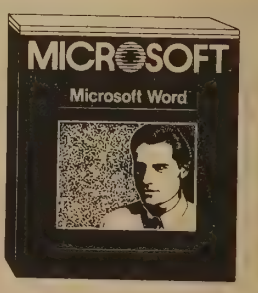

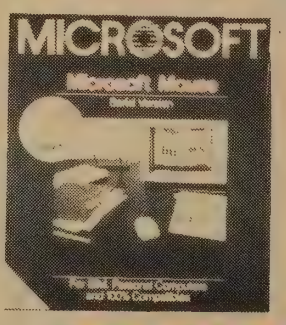

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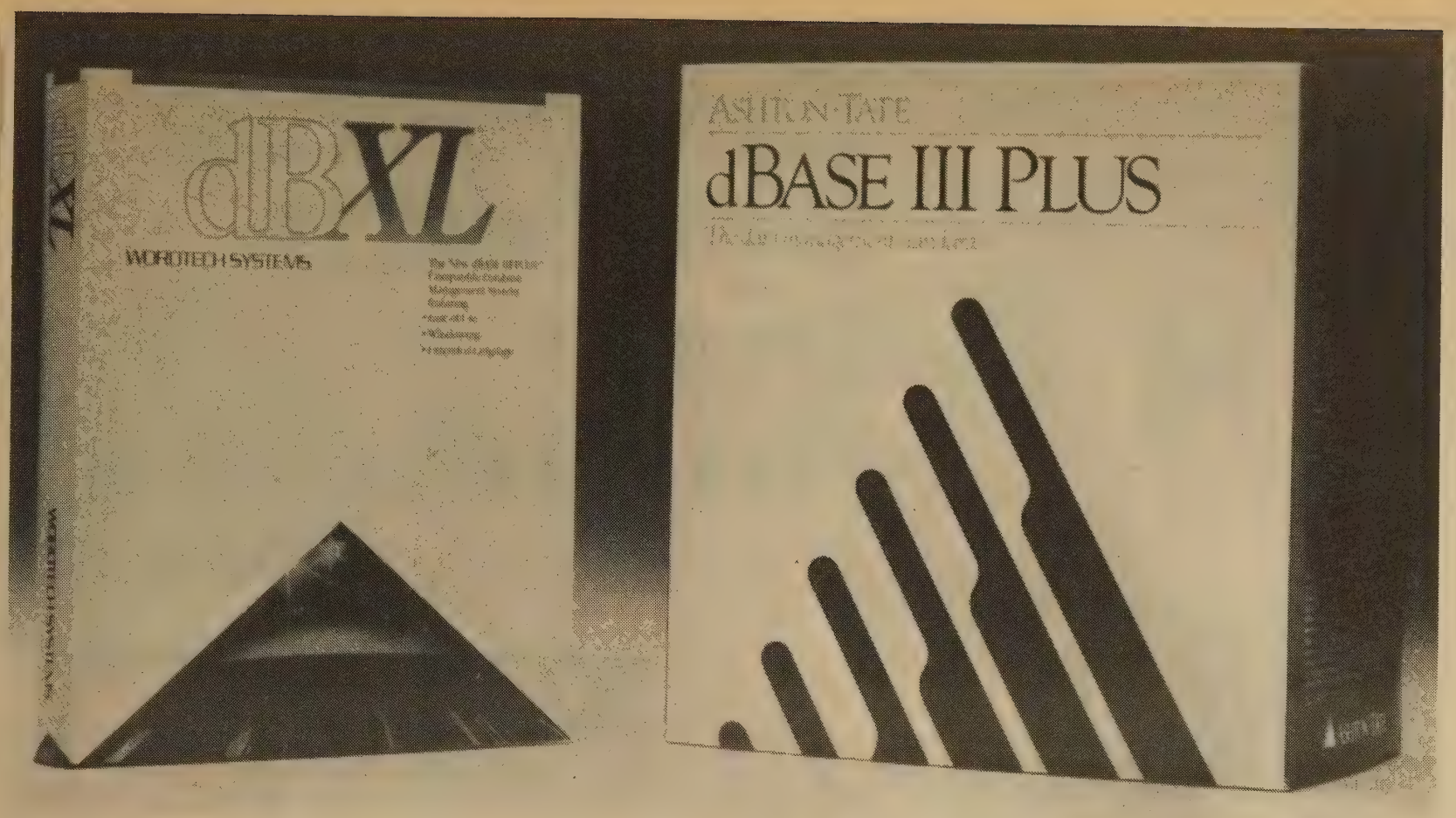

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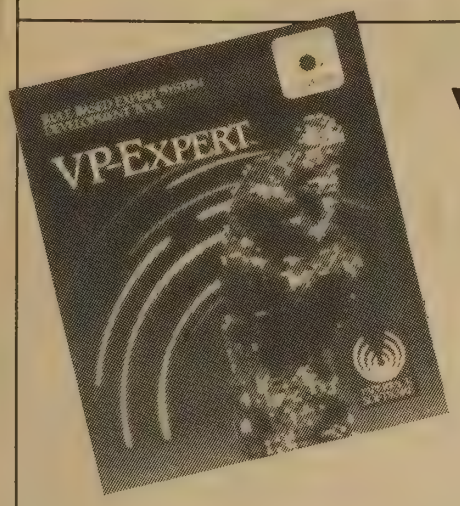

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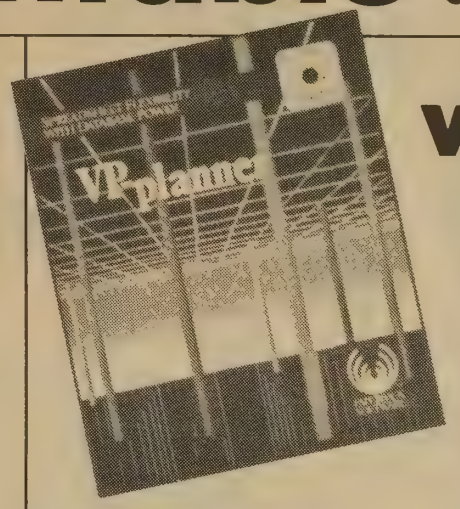

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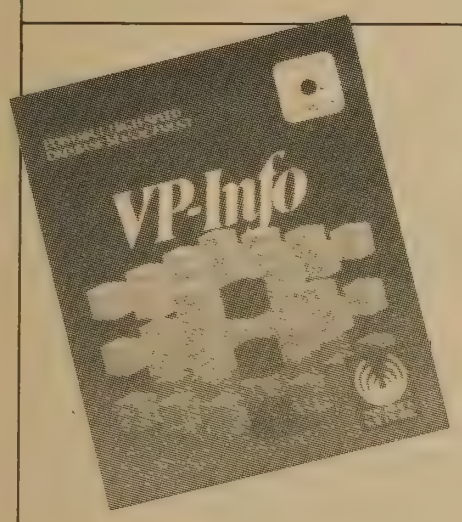

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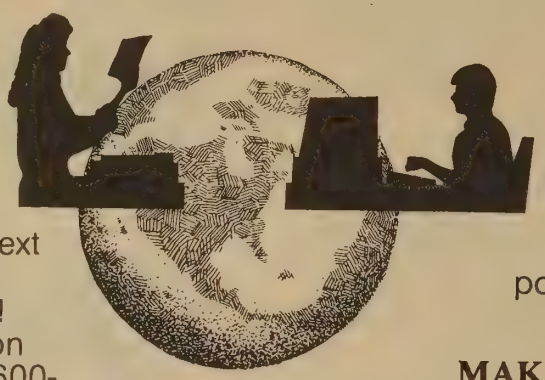

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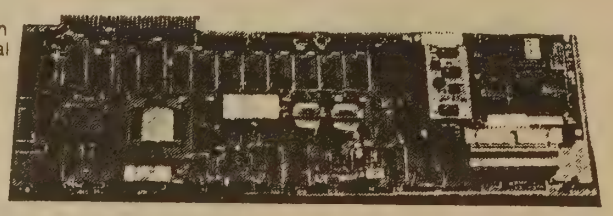

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to move data between your programs.

Macropik'r also allows you to take portions of one file and combine it with portions of other files. You can edit the data after it is entered into *Macropik'r*, reverse rows and columns, invert matrices, and do just about any manipulation of the data which you need.

There is almost no limit to the size of a file which can be read into and worked on by *Macropik'r* . It will first use available memory, then a virtual memory scheme which uses the disk drive as if it were part of memory. The documentation states that about two megabytes of data can be stored in the paste area using this scheme, and that input files can be of any length.

There are a number of different .BAT files which can be used to invoke *Macropik'r*. Which one you use depends on the type of computer hardware and compatibility you use. You can, for example, use color monitors, black and white monitors or a black and white monitor with a color card and send the screen commands directly to the screen, through the BIOS or through DOS. The DOS routines, however, work only with monochrome monitors.

The "macro" in *Macropik'r* obviously comes from the capability of macro files to automate the file translation and movement activities. *Macropik'r* works through function keys. On the left side of the screen, it displays a set of small boxes which represent the function keys. Each of the boxes has a three-letter word which tells you what will happen when you press the key. *Macropik'r* works with mice as well as cursor keys—you just move the cursor to the displayed function key and click.

Underneath this menu is a shaded box. It shows the proportion of the file which you are viewing on the screen. As you page up or down, the display in the box changes to show you the new relative position of the display. For a quick change, you move the cursor to the section of the file you wish to display and press return. That section becomes the new screen display.

After loading, your data is displayed in what *Macropik'r* calls the REPORT area. You can then select a row, cell, column or entire document of data and move it to the PASTE area.

When you get to the paste area, you can place the new data to the right or bottom of the current data. You can also insert rows or columns in the paste area and then move the data into them. You can pick up a row and change it to a column or pick a column and make it a row. You can combine or split apart columns of data in the report area by moving the cursor above the data and adding or deleting the column indicator which *Macropik'r* placed when it read in the original data.

You can also indicate specific numeric formats for rows, columns or cells, as well as change numbers to text and text to numerics. If the data you want to look at or change is not on the screen, there is a FIND command which locates any string of characters you enter.

The only thing I found irritating about the program was the fact that the documentation refers to the ENTER key as the DO-IT key. This is a little too cutesy for a program which will probably only be used by fairly sophisticated users. On the other hand, this irritation is easy enough to avoid—the program is so easy to use, and the display messages are instructive enough that I was able to use *Macropik'r* without referring to the documentation. In fact, the only thing I needed to look up was that a CONTROL-R is what you use to start the macro recording.

Macropik'r also advertises that it will allow you convert your mainframe data to formats usable by the various micro computer programs—which it will. However, one small line in the documentation which states that you must already have a way (read program) to move the data from the mainframe to the micro. Then, and only then, could you use *Macropik'r* to convert that mass of data to the type of format you need.

Macropik'r is a valuable addition to the utility program arena. If you use a variety of programs, each with its own specialized format, and need to move files and data between these programs, *Macropik'r* will soon become indispensable to you. (SAMKHYA Corporation, 47 Sixth Street, Suite 3000, P.O. Box 142, Petaluma, CA 94953, 707/763-2800) □

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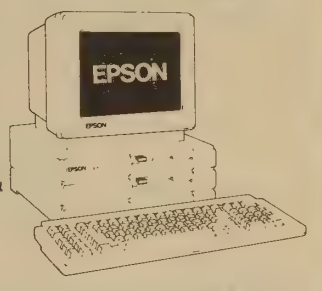

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TurboMax Boards:
Speed And Software Compatibility For Macintosh Power Users

By Jim Wolcott

For many Macintosh enthusiasts, the introduction of Apple's Macintosh SE and Macintosh II was both disappointing and exciting. From a performance standpoint, the SE is little more than a Macintosh Plus with a cooling fan and an extra floppy drive, with the promise for future expansion. On the other hand, the new Macintosh II is the high-powered key to the Mac's business applications, equipped with Motorola's high-performance 68020 Central Processor Unit (CPU) chip, the 16 MHz clock speed (doubled from 8 MHz), and a 68881 floating-point math coprocessor.

Unfortunately, the Macintosh II is priced well beyond the reach of most computer hobbyists, and won't be available at all until early this summer. And Apple has announced that the updated SE, unlike the Macintosh's previous evolutionary steps, doesn't lend itself to an upgrade package for earlier machines.

Which leaves the third-party developers to answer the needs of performance-hungry Macintosh owners throughout the world. In view of this performance void, MacMemory of San Jose, California, has recently released its TurboMax performance-upgrade for the Macintosh. Depending on the features and options selected, a TurboMax-enhanced Macintosh can end up with performance substantially better than a stock Macintosh SE, and, since it's based on the standard-issue Macintosh 68000 CPU, it should retain complete compatibility with existing Macintosh software.

MacMemory's TurboMax offers a variety of performance features. The standard-issue TurboMax expands the RAM out to two megabytes, doubles the processor's "clock speed" to 16 MHz, and adds a new "high-speed" SCSI port. Depending on a user's lust for power, there are different options that can be added to the TurboMax. The 68881 floating-point math coprocessor (which was installed on our test unit), will dramatically increase the processing speed for arithmetic-intensive programs. Also on the option roster are 20- and 40-megabyte internal hard-disk drives, and a provision to support a large-screen monitor.

Thanks to the shape of the circuit board, the TurboMax will work on either a Mac 512K (enhanced), or a Macintosh Plus. All modifications are made to the inside of the Macintosh. The only visual clue that the TurboMax is installed is the routing of an auxiliary high-speed SCSI port, which covers the battery compartment to the rear of the computer. The TurboMax board is equipped with 1.5 megs' worth of memory chips, and, as installed, offers two megabytes of RAM memory (on the one-meg Plus, only 512K of the original motherboard is used; the TurboMax bypasses the other 512K).

The TurboMax board clips onto the mother-

board's existing 68000 CPU; a special plastic clip is provided, and no cutting or soldering is required for installation. With this clip, the standard 68000 chip is bypassed, routing the processing chores to a second 68000 chip on the TurboMax board.

According to John Lazano, the engineer in charge of the TurboMax project, there were two reasons for not using the Macintosh II's 68020 CPU. "When we started work on the TurboMax, Apple wasn't clear about what they were doing with the '020.' Our number-one concern for this product was 100% software compatibility. We wanted to use the processor that we knew worked with all the Macintosh software, and run it as fast as possible. The other consideration was price. The 68020 would have added hundreds of dollars to the final price of the TurboMax.

"The only applications we've found that are not compatible with the TurboMax are games. That's it. But we feel that the kind of customer who will be attracted to the TurboMax isn't going to use it to play games. We're after the corporate user who's tired of watching that wristwatch on the screen."

To power the TurboMax board, MacMemory has designed a sub-chassis for the Macintosh, which mounts in the area occupied by the internal floppy drive. This new sub-chassis is an intricate steel stamping, designed to locate the internal disk drive, mount the auxiliary power supply board, and serve as a mount for an optional 20- or 40-megabyte internal hard-disk drive. The sub-chassis also features a cooling fan, which proved to be quiet and unobtrusive in use.

MacMemory recommends that the TurboMax be installed by certified Apple technicians who have completed Level 1 or 2 of Macintosh training. However, the installation instructions are clear, and anyone familiar with a soldering iron and a volt meter shouldn't have any trouble completing the installation in about three hours. No drilling or other permanent modifications are involved with the TurboMax: thanks to the clip-on socket used for the 68000 CPU, a TurboMax upgrade can be installed and removed without a trace.

PERFORMANCE: TURBOMAX VS. MACINTOSH PLUS VS. PRODIGY 4

Comparing the performance of the TurboMax to a standard Macintosh Plus is difficult. Most high-performance software available for the Macintosh will recognize extra RAM memory, and take advantage of it if possible. Since the TurboMax comes packed with two megs of memory, the contributions of the higher clock speed and the coprocessor can be clouded by the performance of the extra memory.

On the other hand, to provide perspective in the Macintosh performance market, we felt it appropriate to compare the TurboMax to the only other similar Macintosh-enhancement product—Levco's Prodigy 4. In fairness, the Prodigy 4 is a somewhat different (and more expensive) product. Like the TurboMax, the Prodigy 4 features the 68881 co-processor, and the 16 MHz clock speed. The Prodigy 4 differs in that it's based on the 68020 CPU (like the Macintosh II), and it's equipped with four megs of RAM memory.

To minimize the influence of the extra memory, the following tests were performed with Apple's "RAM Cache" switched off. To simulate a real-world calculation, a spreadsheet was created on Microsoft's *Excel*, and an array of 10,000 cells was programmed to calculate the square root of a constant, located in cell A1. When changing the constant in A1, a standard Macintosh managed to recalculate all the cells in 31 seconds. On the TurboMax-equipped Macintosh, the same calculation took only 11 seconds.

Speed improvements were apparent in a variety of programs, but, thanks to the 68881 co-processor, they were always the most dramatic with calculation-intensive software. For example, with the TurboMax, Ashton-Tate's *Pro3D* could re-draw a complex three-dimensional object in 17 seconds; the same object required 22 seconds on a Macintosh Plus. Surprisingly, the *Pro3D* program wouldn't run at all on the Prodigy 4, probably due to the incompatibility of the 68020 CPU.

However, a true perspective of the TurboMax's performance required a "benchmark test" that could be run on a variety of computers. For this, a sixth-order Butterworth filter (a large and complex chain of calculations) was programmed in FORTRAN, and compiled for both IBM and Macintosh computers.

An IBM PC XT (running at its standard 4.77 MHz) was able to run this program in 75 seconds, while IBM's AT ran the program in 39 seconds. A standard Macintosh Plus was able to run the same program, compiled in FORTRAN for the Macintosh, in 62 seconds. The TurboMax-equipped Macintosh finished the program in 38 seconds, and the Prodigy 4 in an amazing 7.4 seconds! (Just to keep proces-

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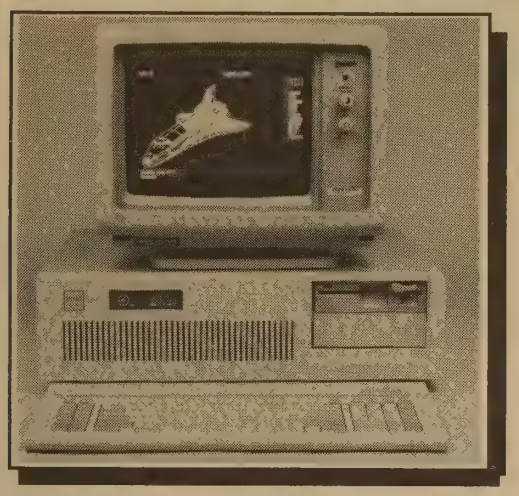

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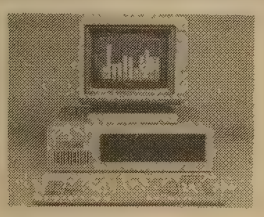

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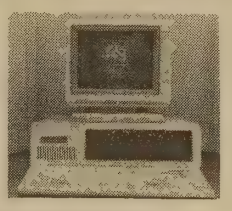

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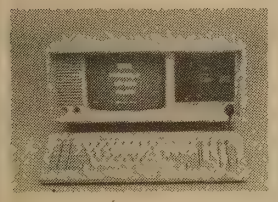

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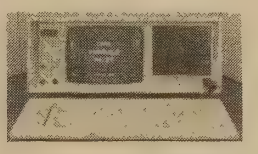

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sing speed in context, an IBM 3084Q mainframe, running the same compiled FORTRAN program, finished in .61 seconds—about 12 times faster than the Prodigy 4!)

THE SCSI PORT

Another controversial feature of the TurboMax is its SCSI port. A jumper on the TurboMax board selects whether the the standard SCSI port or the TurboMax SCSI will be active. Only one can be used at a time. If the Mac's standard SCSI port is selected, there will be no additional speed or performance over the standard Apple Macintosh Plus SCSI.

However, the TurboMax SCSI port runs on the 16 MHz side of the circuitry, and should afford a speed increase when addressing a SCSI hard-disk drive. Unfortunately, rather than using the standard Apple DB-25 connector, MacMemory elected to use a non-standard SCSI "daisy-chain" coupler, requiring a new cable for connection—about a $50 "surprise" that's not included in the price of the TurboMax.

Without the correct cable on hand, we set the TurboMax to use the standard Macintosh Plus SCSI port, and connected a DCC Systems 30-megabyte SCSI "Easy Drive" to the Macintosh. To our surprise, the system would no longer boot from the hard drive, and when booted from an internal floppy, would not transfer, read or launch files from the drive. MacMemory is aware of the incompatibility, and is in the process of writing special SCSI software "drivers" (which require erasing and re-formatting the entire hard drive) for the ten most popular hard drives. According to a MacMemory representative, "there are so many new drives popping up on the market, we had to draw the line at ten. We think we have covered the majority of the hard drives in the field."

On the other hand, some SCSI drives work just fine. According to John Lozano, the Dataframe 20XP and 40XP are completely compatible. After the Easy Drive refused to work with the TurboMax, we tried a Zap SS-20 (20-meg SCSI) hard-disk drive from Zap Computer Supplies in Irvine, California. The Zap drive proved 100% compatible, and we used it as a reference for the rest of our testing. The bottom line is that if you already have a SCSI drive that you want to use with the TurboMax, make sure that it's compatible *before* committing to the TurboMax installation.

WHAT IT COSTS

The horsepower and features afforded by the TurboMax carry a hefty price tag. The basic TurboMax board, with the power supply, fan,16 MHz clock and two megs of RAM retails for $1,300, plus installation. The 68881 math coprocessor chip is an additional $400. Extra RAM memory modules haven't received their final pricing as yet, but will be in the region of $800 per megabyte. Based on those prices, a full-house TurboMax, with the four megs of RAM, will run $3,300.

For those wanting an internal hard-disk drive to accompany the package, MacMemory offers internal, SCSI hard drives. Though still in final testing, the 20-megabyte drive should be available with the TurboMax board for an additional $999, and the 40-megabyte drive is projected to retail for $1,999. Users requiring a high-performance, yet fully self-contained Macintosh system will find the $5200 fully-optioned 40-meg internal TurboMax hard to beat.

It should be pointed out that all of the above pricing does not include installation. However, if the TurboMax is fully outfitted with the RAM memory, coprocessor or drive desired, a one-time installation fee should cover all the hardware. The TurboMax board, the power supply, and all components supplied in the package are covered by a full one-year warranty.

ANALYSIS

The TurboMax is an expensive, high-performance product aimed at users who make their living in front of a Macintosh screen. It will be best appreciated in applications involving long calculations. Those users searching large databases, calculating large spreadsheets, and compiling programs into machine language will be able to take advantage of the speed and power afforded by the TurboMax.

To date, the TurboMax's only competition in the Macintosh performance arena is Levco's Prodigy 4, which costs about three times as much as the TurboMax. Since the Prodigy is still quirky about running *all* existing Macintosh software, as of right now, the TurboMax is the only upgrade that runs all business software on the Macintosh. (Note: this will soon change. Since the Macintosh II employs the same 68020 CPU as the Prodigy 4, future software will be completely compatible with the Prodigy 4.)

For the casual end-user, the advantages of the TurboMax are much less apparent. For the casual user, the extra memory will probably be the biggest attraction, making it possible to place the System/Finder, a powerful word processor, a spelling checker, and huge documents entirely into RAM. However, so would any memory-enhancement product (some two-meg upgrades are available for as little as $400).

Does your Macintosh need a TurboMax? Will you really benefit from the speed and performance it affords? It's all a question of how tired you are of "waiting for the wristwatch" during long calculations. □

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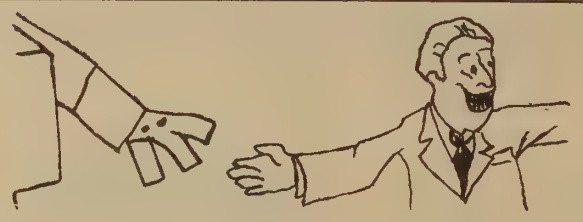
SOFTWARE CONNECTION



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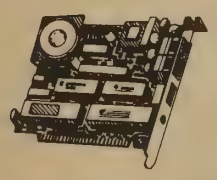

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ARGO 286 IMB 8/10 MHZ, New IBM AT Compatible $1395

Fully Compatible With New IBM AT!! Price Includes: 1MB RAM, 1.2MB Floppy, 8/10 MHz, WDC Floppy/Hard Disk Controller. AT type Keyboard, Clock/Calendar, EVEREX Hercules Compatible 80/132 Columns Monographics Display Card/Printer Port and Super Hi-Res Amber 720 x 350 Monitor. 1 Year Warranty. Made in USA by Everex.

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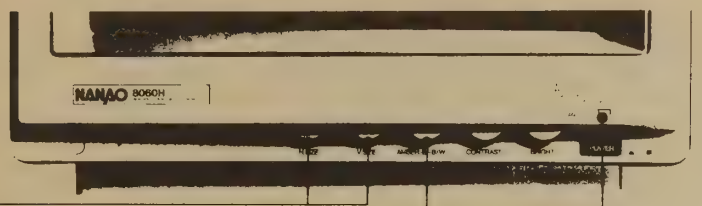
The highest resolution CRT in its class

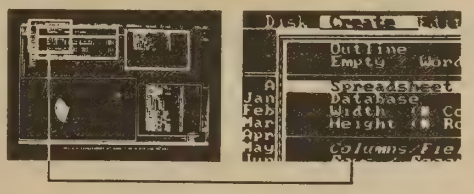
On the model 8060S, we provide a 14-inch (13"V), 0.28mm dot pitch high resolution CRT. It is the highest resolution CRT among different monitors for CGA, EGA and PGA. We also have the model 8060H, which has a 14-inch, 0.31mm dot pitch CRT, similar to other EGA-monitors and multi-scan system monitors. The reason we didn't stop there is that we know the capability of the newest graphics adapters for the IBM PC, XT and AT. Down loadable fonts is one of the most exciting features of these adapters, and they provide fonts of as small as 5x6 character box. In order to get the most out of your software, and take advantage of RAM fonts, try the model 8060 — you'll appreciate the difference.



SIZE Adjustment
4 points 10mm step Horizontal SIZE adjustment and stepless Vertical SIZE adjustment provide perfect H/V aspect ratio.

TEXT Mode
Characters are switched to Amber or White in every mode White characters mixed with light original colors and intensity makes it easy to find important part of display

SIGNAL Indicator
The power indicator lamp also indicates TTL signal mode with Orange light and ANALOG signal mode with Green



	NANAO model 8060S	NEC MULTISYNC	IBM PGD
CRT Trio pitch	0.28mm	0.31mm	0.31mm
Horizontal dots	820	800	640
Vertical lines	620	560	480

Specifications

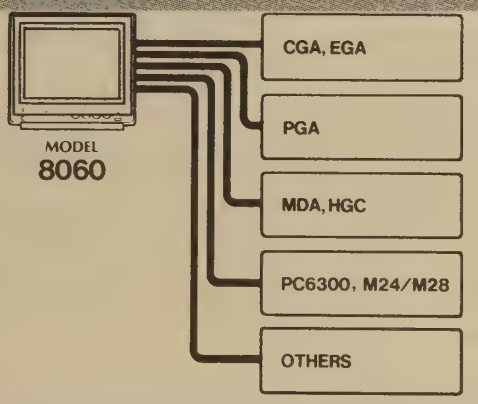
CRT Trio pitch	0.28mm 8060S, 0.31mm 8060H
Size	14" (13V) 90°
Face treatment	Dark face, Non-glare
Standard Display size	250mm×167mm
Recommended Resolution	820 horizontal dots 620 vertical lines
Video Band Width	30MHz minimum
Dimensions(mm)	356(W)×325(H)×400(D)

Wide compatibility

Model 8060 is fully compatible with all standard Color Graphic Adapters from IBM. Scan frequency, number of colors, display size and position are automatically adjusted.
It also supports AT&T PC6300, OLIVETTI M24/M28 users with automatically adjusted full size display.

	NANAO model 8060	NEC MULTISYNC	IBM EGD	IBM PGD
PGA	●	●	—	●
EGA	●	●	●	—
CGA	●	●	●	—
MDA, HGC	●	●	—	—
AT & T PC 6300 OLIVETTI M24-M28	●	Proper display size not adjustable	—	—

Automatic scan frequency adjustment for horizontal and vertical frequencies. Both horizontal and vertical scan are automatically adjusted to those of display boards and computers. On NEC MULTISYNC, vertical sync. has to be manually adjusted.



COMPARISON BETWEEN NANAO FLEXSCAN (8060H) AND NEC MULTISYNC

Item	NANAO FLEXSCAN	NEC MULTISYNC
Scan frequency		
Horizontal	15.5KHz - 35KHz (auto)	15.5KHz - 35KHz (auto)
Vertical	50Hz - 80Hz (auto)	56Hz - 62Hz (manual)
Horizontal size adjust		
Position	Front	Top (under the Lid)
Number of steps	4 positions	2 positions
Range (EGA)	235mm - 265mm	245mm - 255mm
Range (AT&T PC6300)	242mm - 270mm (overscan)	195mm - 205mm
Vertical size adjust		
Position	Front	Top (under the Lid)
Range	135mm - Overscan	110mm - Overscan
Brightness (EGA		
High-white	95 ft-L	70 ft-L (115)
White	50 ft-L	20 ft-L (40)
Gray	30 ft-L	15 ft-L (35)
Test Mode Switch		
Available with	Any adapter (TTL/Analog)	EGA, CGA only
Intensified text	Yes	No
Switch position	Front	Back and Top
Dynamic raster regulation with EGA	No distortion due to the bright pattern	Distortion due to the bright pattern

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Everex Edge color and Hercules monographics	**$199**
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Everex Evercom 24 2400 baud modem	**$199**
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Everex Magic-16, AT 2MB multifunction card with 2MB RAM	**$345**
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Everex PC/XT/AT EMS-Lotus/MS/Intel card with 2MB RAM	**$339**
Everex Magic I/O PC/XT/AT serial/parallel card	**$69**
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Everex PC/XT floppy/hard drive combination card	**$139**
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Everex 60MB 5MB/min speed tape backup int./ext.	**$749/839**

Seagate 30MB HD Complete Kit $377

Complete kit with RLL controller card, Seagate 65 Msec., HD, cables, mounting hardware, installation instructions/software. **Brand new boxes, 1 year warranty, free installation in IBM PC/XT/Compaq DP, and most IBM look-alike compatibles.**

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EGA 14" monitor, 28MM dot pitch with green/amber switch	**$477**
Brother 1409M, 180CPS 11" DP/NLQ Epson mode printer	**$339**
Brother 1709M, 240CPS DP/Bold/NLQ, 10/12/17/PS printer	**$589**

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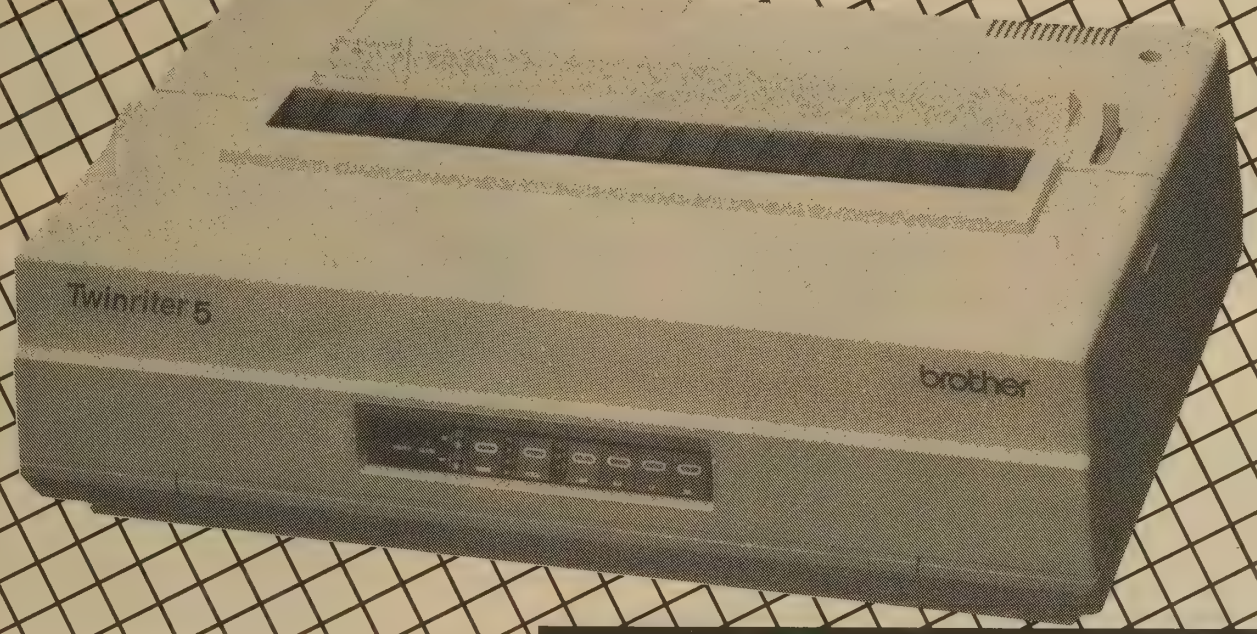
Twinriter 5

The World's First Daisy Wheel/Dot Matrix Printer



The Hybrid

Features:

- Daisy wheel printing
- Dot matrix printing
- 3K byte buffer (option. . . 11K or 19K byte)
- Six types of dot densities
- Super/subscript
- Auto underlining
- Bold printing
- Shadow printing
- Proportional spacing

Daisy Wheel Mode Specifications:

Print speed	35 CPS (3A Text, Elite pitch)
Print wheel	96 chrs/wheel
Print wheel life	10 million chrs/wheel

Cost Performance Plus

The dot matrix/daisy wheel capabilities of the TWINRITER 5 allow wide versatility that saves space, time and money.

1. Document produced on a word processor.
2. Printout in draft mode (dot).
3. Proofreading and review.
4. Corrections made on word processor.
5. Switch to letter quality mode (using control panel or computer command).
6. Printout in letter quality mode (daisy wheel).
7. Finished document.

Print Head

The secret behind the TWINRITER 5 is a dual head printing system that provides both daisy wheel and dot matrix capabilities. Switching between the two heads allows virtually unlimited versatility.

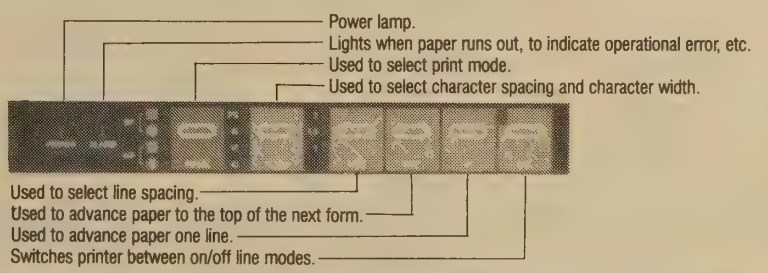
Dot Matrix Mode Specifications:

Print head	9-pin wire dot
Print speed	140 cps (max.)
Character configuration	
Draft mode	7x9 dot matrix
Near letter quality mode	24x24 dot matrix

The Brother Twinriter 5 printer has successfully passed compatibility testing with 1-2-3 Release 2, Symphony Release 1.1, and 1-2-3 Report Writer on an IBM PC-XT with PC-DOS 3.0. Installation of the Diablo 630 driver for text printing, and the Epson FX-80 driver for graphics printing is required.

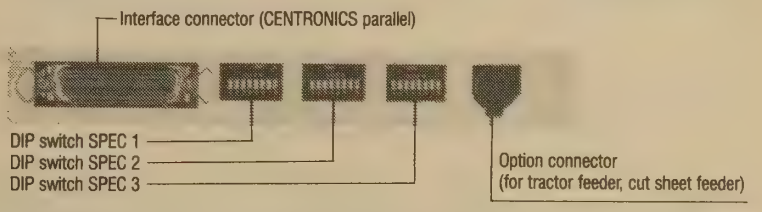
Control Panel

Controls and indicators of the TWINRITER 5 are conveniently located for centralized switching operations. The current status of the printer can be determined at a glance.


Power lamp.
Lights when paper runs out, to indicate operational error, etc.
Used to select print mode.
Used to select character spacing and character width.
Used to select line spacing.
Used to advance paper to the top of the next form.
Used to advance paper one line.
Switches printer between on/off line modes.

Interface Layout

The TWINRITER 5 comes equipped with a CENTRONICS parallel interface. An RS-232C interfacing is made possible using an optionally available convertor.


Interface connector (CENTRONICS parallel)
DIP switch SPEC 1
DIP switch SPEC 2
DIP switch SPEC 3
Option connector
(for tractor feeder, cut sheet feeder)

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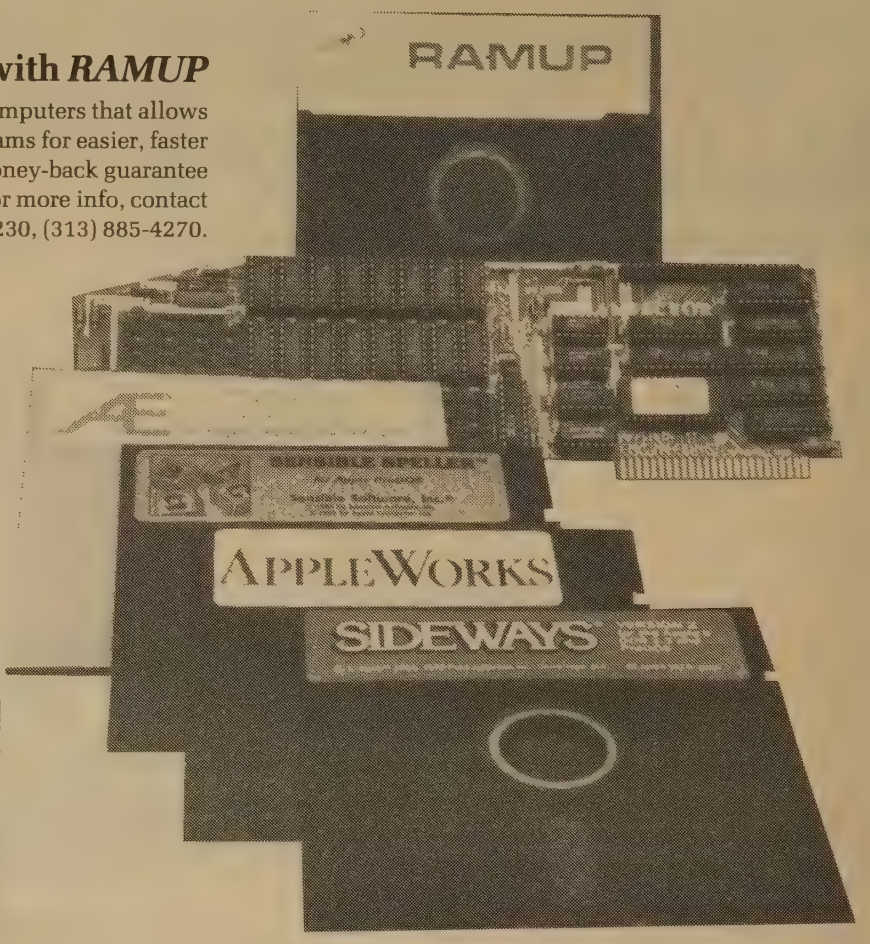
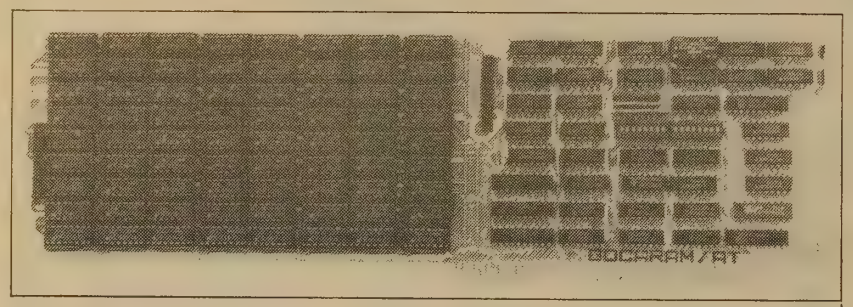
Make Your Apples Grow with *RAMUP*

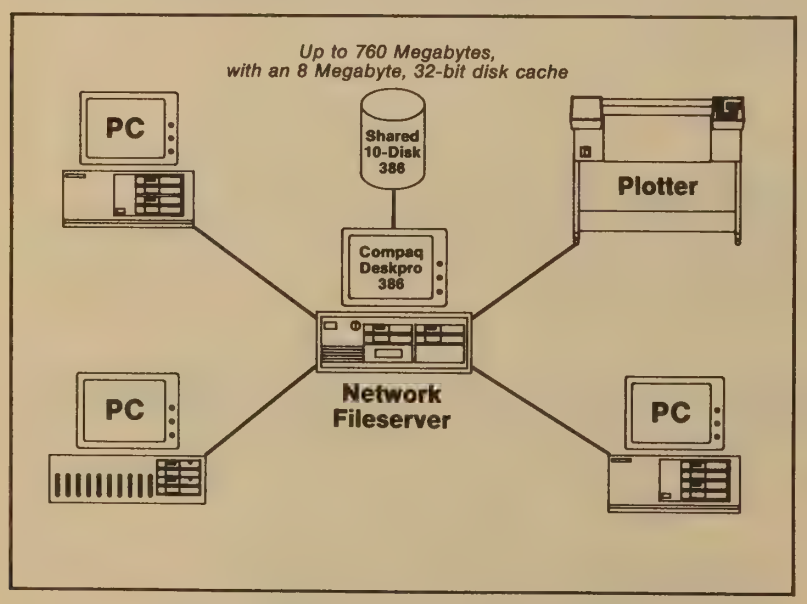
RAMUP is a menu-driven utilities program from Quality Computers that allows users with no programming knowledge to link Apple programs for easier, faster access. The program costing $34.95 comes with a 20-day money-back guarantee and a free subscription to the quarterly RamNews Letter. For more info, contact Quality Computers, 1365 Berkshire, Grosse Pointe, MI 48230, (313) 885-4270.





A Fifth Memory Board From Boca

Boca's BOCARAM family of high quality, low cost memory boards has a new member, the BOCARAM/AT, for IBM-ATs, XT-286s and true compatibles. Among its features the Bocram/AT offers a 2-MB board with optional 2-MB daughter board, using 64K or 256K 150ns RAM chips. The price, ranging from $245 to $995, includes a two-year warranty and free technical support. For more info, contact Boca Research, 6401 Congress Ave., Boca Raton, FL 33431, (305) 997-6227.



Expanding The Deskpro 386

ACS Telecom's 10-disk/386 Fileserver Expansion Kit, designed for compatibility with every leading LAN, increases the Compaq Deskpro 386's storage capacity, up to 760 MB, and speed, up to 60%. The kit can be used in CAD/CAM and image processing environments. Prices start at $5,595. For more info, contact ACS Telecom, 25825 Eshelman Ave., Lomita, CA 90717, (213) 325-3055, Telex 350213.

High Resolution Video With Zenith Z-159 PC

Zenith's performance-enhanced, lower-priced version of the Z-150 desktop PC offers high-resolution video displays and new RAM technology. New cards and better RAM access gives users more intensive spreadsheet, database and window applications. Five models are available, ranging in price from $1,749 to $2,799. For more info, contact Zenith Data Systems, 1000 Milwaukee Ave., Glenview, IL 60025, (312) 699-4839.

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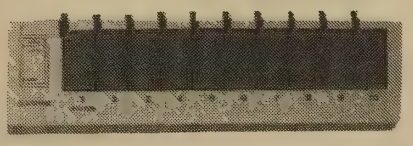

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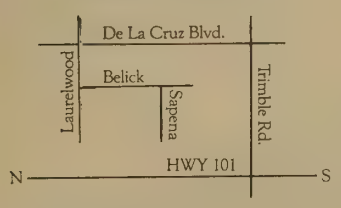

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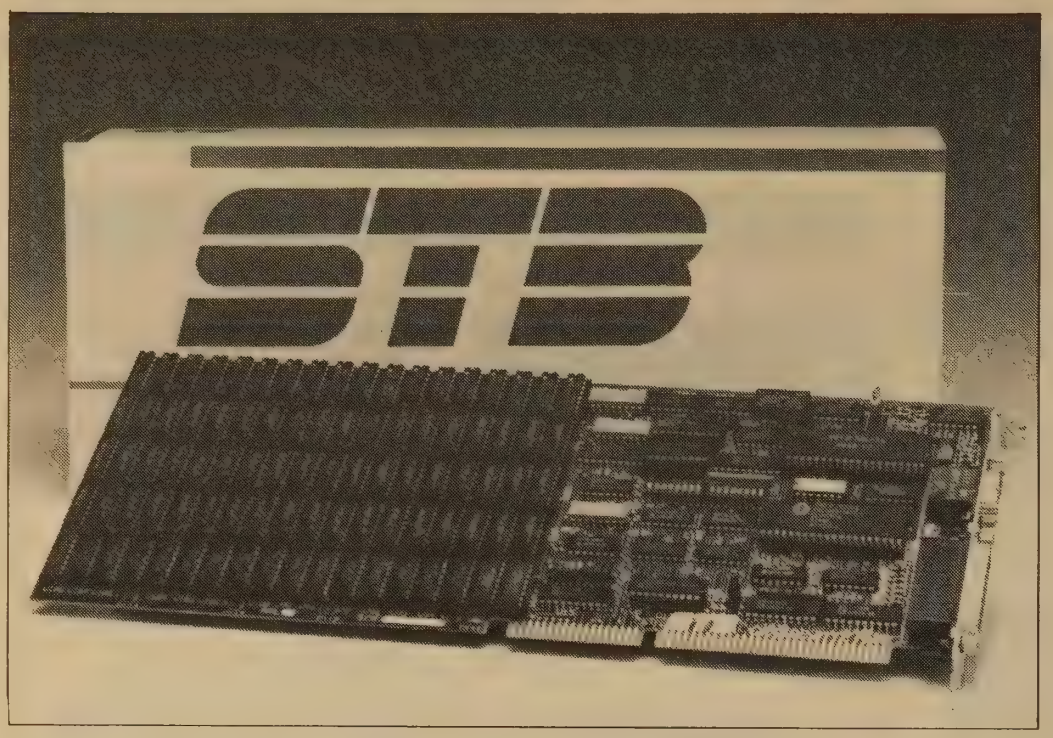
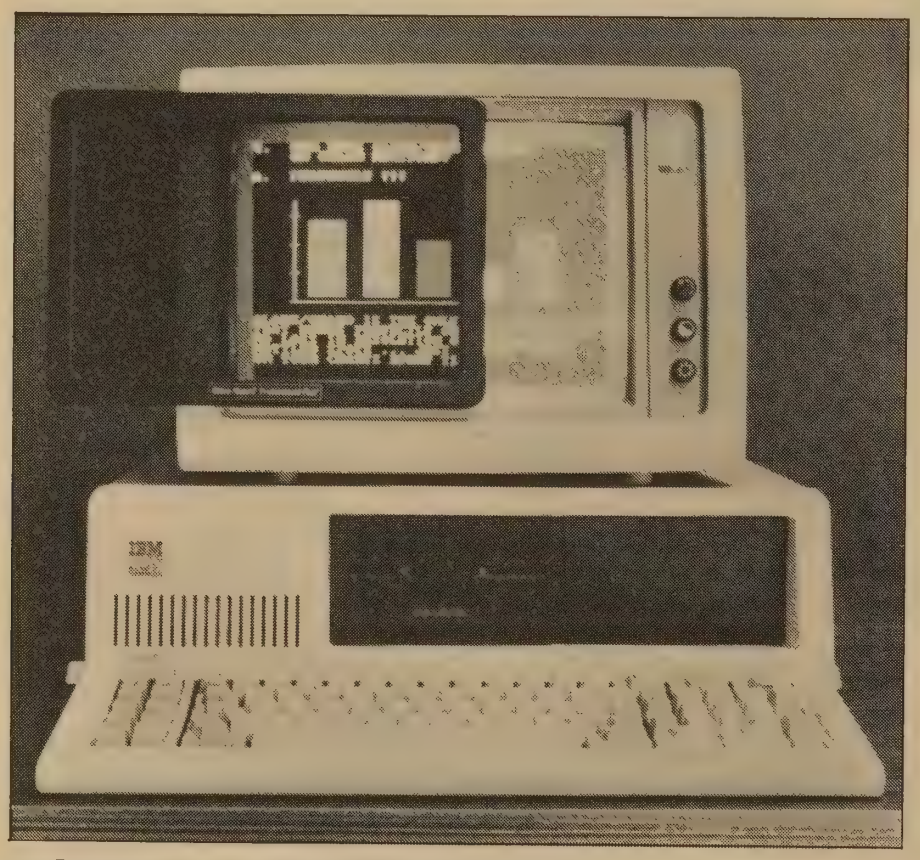


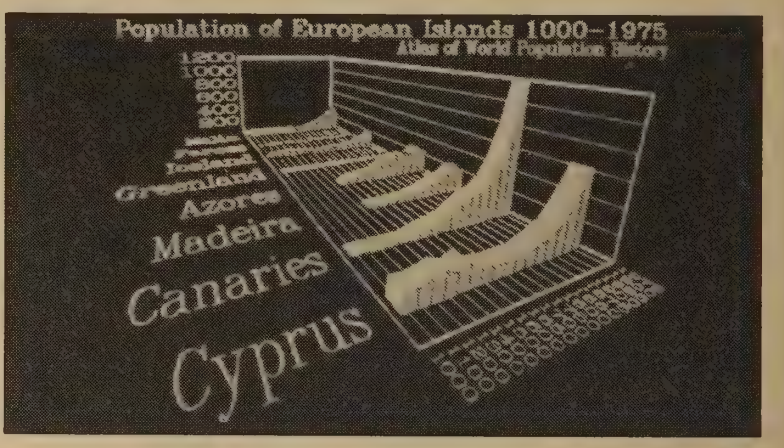
Take A Grande Byte Plus

The 16-bit Grande Byte Plus multi-function board offers a wide range of memory expansion, up to 2.5 MB, and input/output functions in STB's line of IBM-AT compatible products. This cost-effective board allows users to run powerful multi-tasking programs or multi-user systems. Prices range from $319 to $1,495. For more info, contact STB Systems, 1651 N. Glenville, Ste. 210, Richardson, TX 75081, (214) 234-8750.



Solution To A Glaring Problem

Optical Coating Laboratory, Inc. (OCLI) is dealing with the persistant problem of CRT glare-induced eyestrain. OCLI offers three different Glare/Guard filters which fit more than 900 monitors. Prices range from $34.95 to $99.00. To receive OCLI's free information package, send 75 cents for postage to OCLI, 2789 Northpoint Parkway, Dept. 171-1, Santa Rosa, CA 95407-7397. For more info, call 1-800-545-6254.

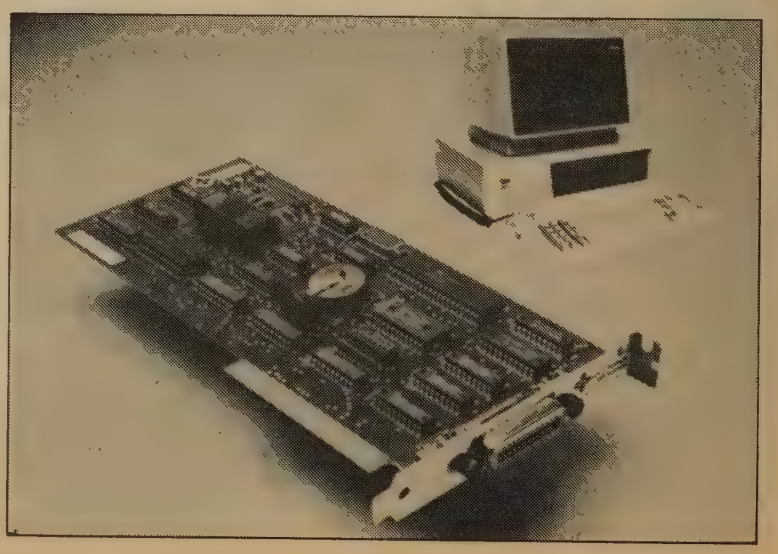


Superprint Enhances *Perspective* For Desktop Publishing

From Three D Graphics, the 1.2 version of *Perspective*, features among other things, "Superprint," which allows users to print 2-D and 3-D graphs at a resolution limited only by printer capability. Designed for IBM and compatible desktop publishing, it works with both dot-matrix and laser printers to maximize printer resolution. For more info, contact Three D Graphics, 860 Via de la Paz, Pacific Palisades, CA 90272, (213) 459-7949.

Memory Independent GPIB Controller From ICS

Ever wish for a GPIB controller card that didn't consume memory space? ICS' 488-PCI plug-in card turns IBM-PC/XT/ATs and compatibles into GPIB (IEEE 488 bus) controllers that can operate 14 independent test and measurement instruments or other devices. The price, $395, includes a demonstration, instructional disk, user's manual and one-year warranty. For more info, contact ICS Electronics, 2185 Old Oakland Road, San Jose, CA 95131, (408) 263-4844.



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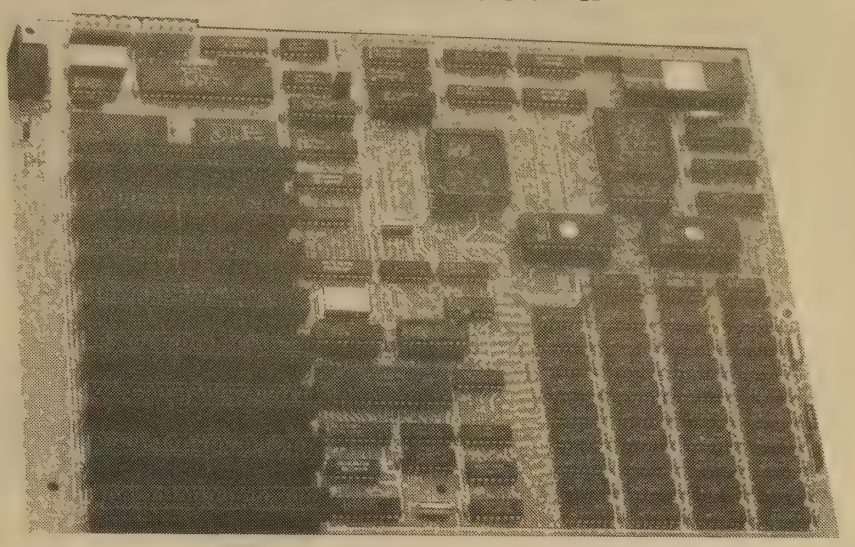

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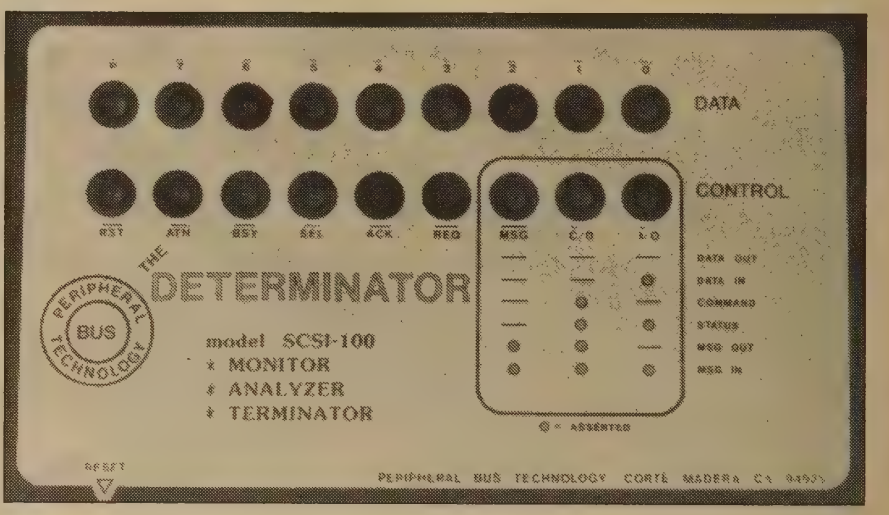
Anchor Automation's Signalman Secure 24 is an intelligent 2400/1200-baud modem for applications that require telecommunications security protection. It operates with up to three levels of password protection, storing an average of 64 passwords and callback number combinations. Durable enough for commercial use. For more info, contact Sands Communications, 612 Hampton Dr., #B, Venice, CA 90291, (213) 399-5511.

Save Your Place With *Bookmark*

Intellisoft's data protection software, *Bookmark*, tackles the problem of data loss from power failure, accidental reset, system crash and frozen keyboard. *Bookmark* is available for the IBM-PC/XT/AT and 100% compatibles equipped with at least one floppy disk drive and a 10-MB-minimum hard drive. For more info, contact Intellisoft International, P.O. Box 5055, Novato, CA 94948, (1-800) 543-MARK, or outside California, (1-800) 544-MARK.



Troubleshooting with Determinator

Peripheral Bus Technology offers the SCSI-100 Determinator Bus Activity Monitor. This is a diagnostic and development tool for use with SCSI. The device features, among other things, 18 LED-displayed data, parity and control lines, with variations in LED intensity to show duration of line activity. Three versions are available, all priced at $125. For more info, contact Bear Electronics, P.O. Box 61, Moraga, CA 94556, (415) 376-0125.

The Power Of Protection

PurePowerPlus, from SSB Design is a surge suppressor power control system. Among its features are a voltage indicator to detect overvoltages and brownouts, and a red LED indicator that flashes when voltage fluctuates to extremes that endanger data safety. Prices range from $139.95 to $199.95. For more info, call or write SSB Design, 17971 Sky Park Circle, Irvine, CA 92714, (714) 261-6855.

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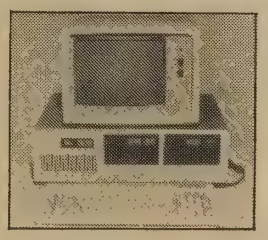

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- "XT" Compatible BIOS
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- "Setup" Procedure

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TUTOR requires DOS version 2.0 or higher, and 256K RAM. All references made to DOS are made jointly to MS-DOS™ and PC-DOS™. MS-DOS™ is a trademark of Microsoft Corporation, Redmond, WA. IBM-PC, -XT, -AT, and PC-DOS™ are registered trademarks of International Business Machines Corp., Armonk, NY.

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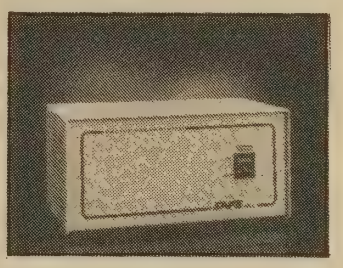

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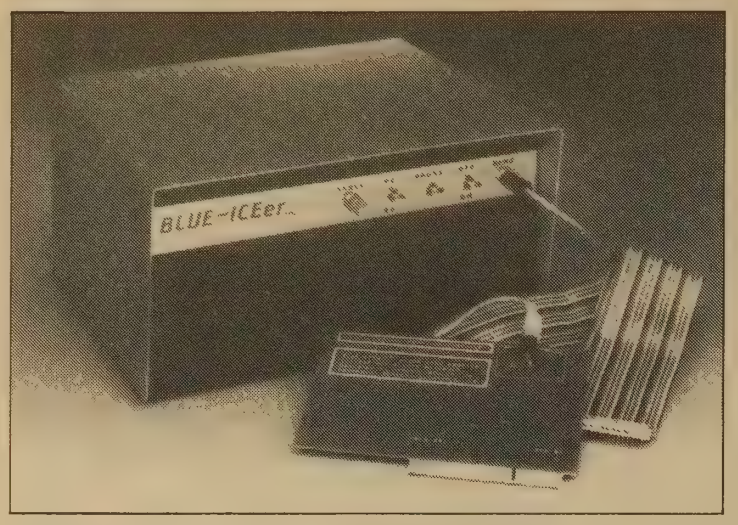


Top Off Your DOS With Added Features

TopDos from Frontrunner is a new integrated DOS and hard disk management system. It combines a file/directory manager with keyboard macros and DOS utilities in one package. It provides an easy to understand visual display of hard disk files. It also adds many new features to DOS such as an instant editor, new commands and your own customized commands. ($69.95) FrontRunner Development Corporation, 14656 Oxnard Street, Van Nuys, CA 91411. (818) 376-1322.

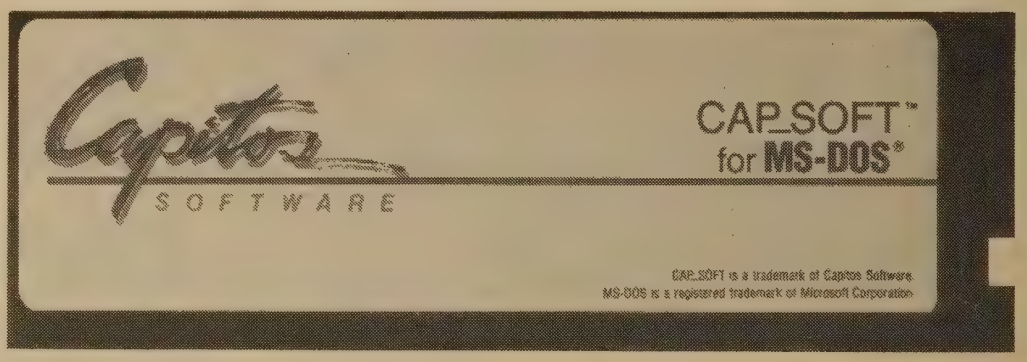
TopDOS

Diagnostic And Troubleshooting Instrument For PCs

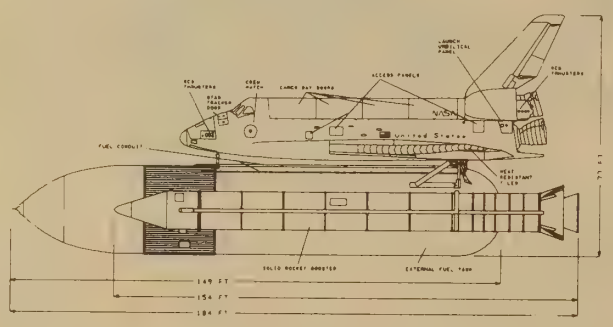
Anyone who has a stake in keeping computers healthy, from dealers and repair shops to large corporations, should consider the BLUE-ICEer. BLUE-ICEer reduces the time it takes to locate a problem or defective component from hours to just minutes. It runs a series of tests that checks everything from the motherboard to the keyboard. ($3,995) Paramount Electronics, 1155 Tasman Dr., Sunnyvale CA 94089. (408) 734-2135.

Online DOS Manual

CAP-SOFT is an add on program that provides an on-line version of Microsoft's MS-DOS reference manual. It provides descriptions and explanations for the 40 different commands



found in MS-DOS version 3.2. With only a few keystrokes it lends itself to the beginner as a learning tool and to the experienced user as a quick reference guide. ($29.11) Capitos Software, 150 Felker Street, Suite E, Santa Cruz, CA 95060.



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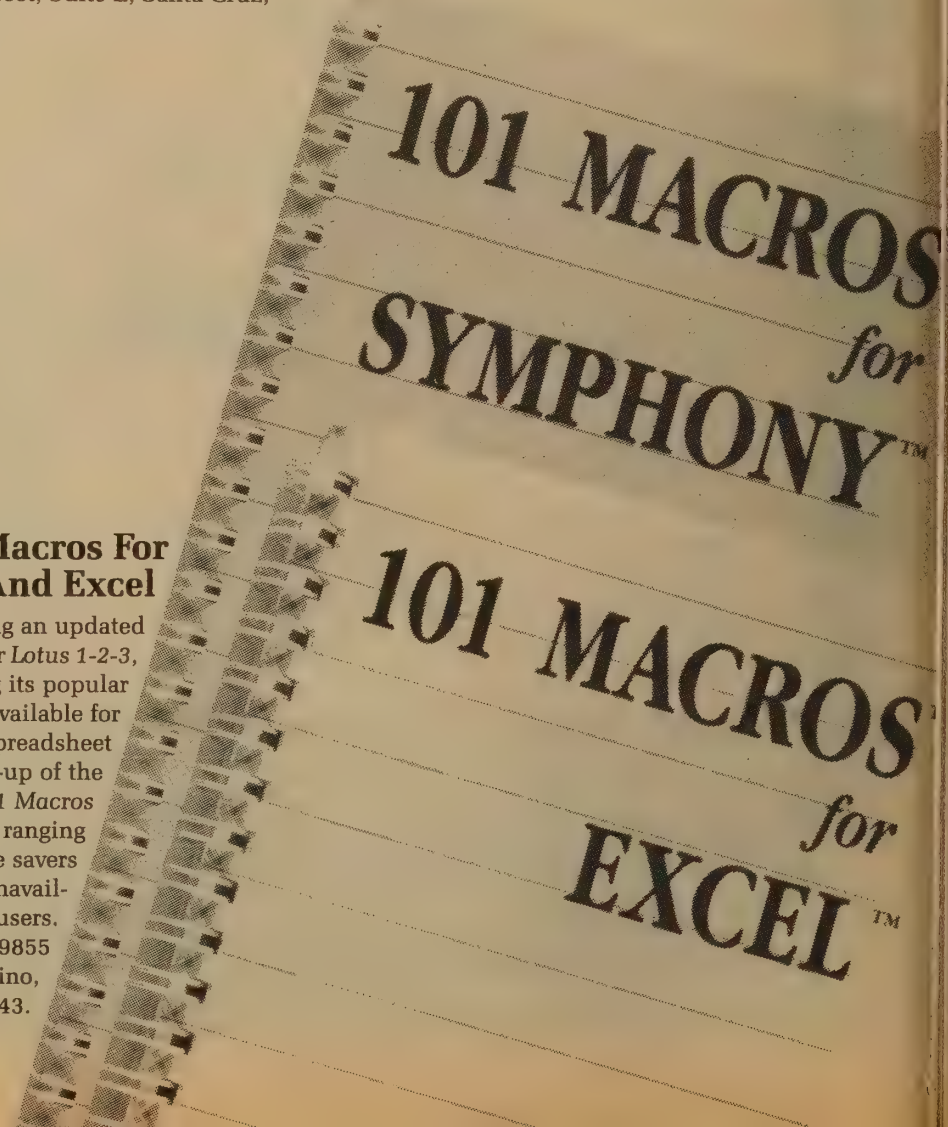

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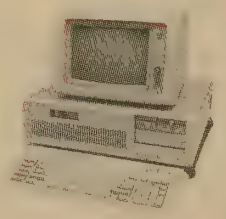

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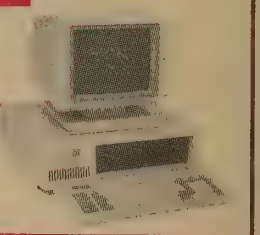

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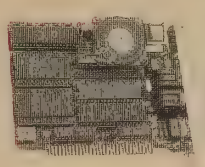

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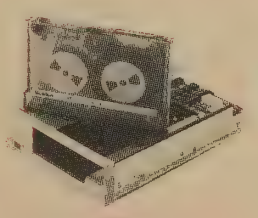

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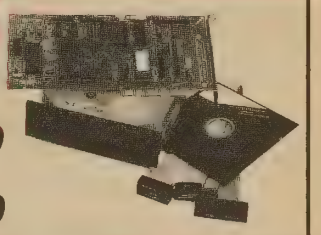

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- EGA Color, 14" monitor **$450**
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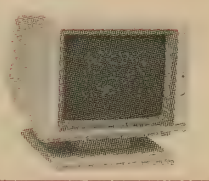

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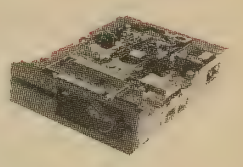

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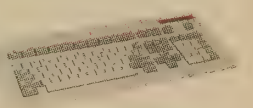

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Graphics And The Business Professional

By Ken Milburn

Despite the aversion to graphics and design professed by the business people who control the vast majority of personal computers, there are strong indications that this will be the year of computer graphics in ordinary business. Why? Because graphical capabilities help to humanize the computer interface, thereby cutting stress and training time. Because pictures sell ideas, goods and services more effectively (especially in the age of television). And because graphical capabilities have become both practical and affordable.

You've already put a lot of time and money into your PC, and it needn't go to waste. It's still the most widely used, supported and versatile system around. And no Macintosh can do anything your PC doesn't have at least the potential to do.

The evidence that business is demanding visual appeal in computing is abundant. Witness the growth in sales of the Macintosh: up over 100% in the past 14 months and now outselling all IBM-brand personal computers. The number of Enhanced Graphic Cards and color monitors (mostly multi-syncs) is now estimated by some analysts to be more than 25% of the installed base. Several of the "Top Ten" on the SoftSel Hot List are graphics applications like Lotus' *Freelance, Generic CADD,* and *PCPaintbrush.*

The recent hot product announcements have been almost exclusively related to the affordable implementation of fast, high-resolution graphics on personal computers. This can be seen in products such as Intel's 82786 and TI's 34010 graphics co-processors, 80386-based PC-compatibles, higher resolution EGA-compatible display cards, the NEC Multisync monitor (which has spawned more than half a dozen imitators in less than six months) and the open bus, large-screen, high-resolution color Mac II.

The Macintosh has been the platform for proving that graphics can be used to broaden fundamental business applications, along with making them natural to use and significantly more productive.

If you're a dyed-in-the-wool PC fanatic like I am, you probably won't believe that. I stubbornly continued to think of the Mac as the "Marin Etch-A-Sketch" until I was assigned a feature on the use of the Macintosh in scientific word processing. Spend an hour each with any two of these Mac applications: Microsoft *Word 3.0,* Microsoft *Excel,* Microsoft *Works, File Vision, Guide* or *SuperPaint.* If they don't make a believer out of you, I'll eat my hat.

I don't mean you should go out and donate your PC to your favorite charity. You've already put a lot of time and money into it and it needn't go to waste. It's still the most widely used, supported and versatile system around. And no Macintosh can do anything your PC doesn't have at least the potential to do. Even "desktop publishing," the main excuse for sneaking so many Macs into Brooks Brothers suits, can now be implemented just as well, and some say better, on a PC.

In that spirit, let's take a look at some hardware and applications that can profitably and synergistically expand your PC's graphical abilities. Although I've described several of these items in past columns, I would like to mention them again and place them in context.

Unless you need the tax deduction, don't rush out to buy all this stuff at once. The idea here is to give you a list of hardware and software you can add one piece at a time, with an eye towards a fully-capable system in the future. In the process, you needn't outmode the work you've already done.

BOARDS FOR SPEED AND RESOLUTION

First, do whatever you can to speed up your computer. Windows, publishing and computer-aided design and drafting heavily tax your processor. This problem is compounded by the programs' need to keep re-drawing the screen. A math co-processor, therefore, is the first step you need to take. Since 286 turbo cards can cause problems, move up to an AT or 386. Or check out the 386 turbo cards (all claim 100% compatibility). I haven't tested any of the these yet, nor seen much in the way of published tests, but Orchid Technologies is offering an outstanding bargain for under $1,200.

Hold off on the graphics co-processor boards for another three to six months. They will speed graphics up, but won't help out your other applications like the first two options. Besides, several "single-board" solutions have been announced that will incorporate one of the graphics co-processors, double EGA resolution and still be EGA/CGA/MDA downward-compatible. Some are slated to retail for $995 and should become a reality by mid-summer.

Too bad, because the next logical step would be to add a high-resolution color graphics card to your system. The newest generation is EEGA (for Enhanced Extended Graphics Adapters), which improves resolution to 640 × 480. That's a 37% improvement and makes each pixel square, so that what you see on screen is more like what you get from a laser printer.

Do whatever you can to speed up your computer. Windows, publishing, and CADD heavily tax your processor. This problem is compounded by the programs' need to keep re-drawing the screen. A math coprocessor, therefore, is the first step you need to take.

I've touted the Paradise AutoSwitch EGA in the past because it configures itself to your software and monitor, taking all the hassle out of configuration. All you have to do is plug it in any slot, plug in the monitor and forget about it. The EEGA version arrived just a few days before this column was written and it's even slicker. There's a menu for setting up for 132 column

Copyright © 1987 by Ken Milburn. All rights reserved. *Ken Milburn is a freelance writer on Microcomputers. His articles have appeared in numerous computer publications, including* PCWorld, InfoWorld, Computer Graphics World *and* MicroTimes. *He also does system configuration for small businesses. He can be reached at (415) 331-6926 or by sending E-mail to (ken) on The WELL, (415) 332-6106.*

mode if you want to view a wide spreadsheet or 42 lines of text in *WordPerfect* or *WordStar*.

The great failing of most of the "enhanced" EGA cards is that very little software will take advantage of the 480-line mode. Paradise entered the race a couple of months late so they could ship their card with drivers for the most popular applications, such as *Windows, GEM, PageMaker, Ventura Publisher, Lotus, Word Perfect, WordStar, EGAPaint!, AutoCAD* and *CAD-Vance*. When I tested it with *Ventura* and *AutoCAD*, the extra 130 lines made a major difference. Of course, this card is still completely compatible with software that's set up for CGA, MDA, Hercules and (unique to Paradise) Plantronics display standards.

MONITORS: NEW STANDARDS COMING

You don't have to buy a monitor at the same time you buy a card, as EGA and EEGA cards will work just fine with monochrome monitors and with non-EGA color monitors. These monitors do provide crummy resolution, however.

Eventually, you'll need a monitor labeled "multisync" or "multiscan" to take advantage of extra resolution. This way your monitor investment is somewhat protected when the next generation of display cards comes along. Most of the major Japanese tube-makers now make a multi-synchronous model, but the original from NEC Multisync is still coming out on top in comparative reviews. They concur that its image is sharper, colors brighter and that it manifests less distortion than its competition.

MICE REVISITED

Graphics applications require an ability to move the cursor quickly about the screen. A mouse is the cheapest and most widely supported way to do that. I've recently had occasion to re-review the latest Microsoft and Mouse Systems mice and like them both. They are smooth and accurate and neither of them has the "port amnesia" that the Logitech C7 + seems to randomly exhibit.

I'd still, however, put my money on the C7 for three reasons: its bargain price (under $100), its compatibility with nearly all software and its amazing programmability. The software it comes with lets you turn any application (like *WordPerfect*) into a mouse-based "point and click" operation with "window shade" menus.

OUTPUT—OPTIONS AND LIMITATIONS

Hard copy output is the final thing to consider. Daisywheel printers can't print graphics at all. If you own an IBM Proprinter or an Epson FX80, you'll be able to print grainy full-page black & white graphics, but you won't be proud to show them to a client. Twenty-four pin printers, like the rugged Toshiba 3-in-1 series, can print at near-laser printer resolution of 180×360 dots-per-inch. At $500 to $1,200 (depending on speed, carriage width and features), printers of this type will give you the most versatility for the money. The compromise is speed, and to a lesser degree, image quality.

Laser-printers can do the most professional looking monochrome drawing and typesetting, but you'll need a megabyte of printer memory for full-page graphics. And most publishing software will require the PostScript page description language for full-featured "typesetting."

The Apple LaserWriter and the QMS PS800 are the most popular of the lasers that meet both these requirements. They are, consequently, the easiest to find, repair and buy supplies for.

The Laser Connection's PSJet will convert your H-P LaserJet in order to meet these requirements(see last month's column on PC desktop publishing). I prefer the PS800/LaserJets because they're a bit quicker at formatting multiple page documents than the Apple products. Mine has proven both reliable and totally compatible with both the Mac and the PC.

We're still stuck with traditional publishing methods when it comes to color, but you can send your page makeup program's files directly to printshops that have PostScript-equipped typesetting machines. The printer can then insert your color graphics wherever you've left space for them.

There are some newer PostScript lasers based on the Ricoh printer engine that produce denser blacks and more copies between cartridge replacements, but I hesitate to recommend them until they've been out there long enough to establish a service record.

There aren't any panaceas for color hard copy. The Xerox 4020 inkjet printer produces vivid and streak-free overhead transparencies for the presentation of business graphics and word charts. In that application, it will outperform plotters in both speed and quality. On the other hand, pen plotters are the most affordable way to produce pro-level architectural, engineering and technical drawings.

Thirty-five millimeter slides are the only media that can faithfully reproduce everything your computer can produce. They are also the only affordable means of distributing "paint" illustrations. If your screen's resolution and colors are good enough to suit your purpose, you can shoot it with your Nikon, a tripod and a close-up lens. If not, there are several film recorders that can enhance both the screen resolution and the number of colors.

The Polaroid Palette, at $2,995 in the new EGA version, is the least expensive and most popular of these. It also has the lowest resolution. If you want slides for publication or large-screen projection, it's possible to send your floppies to a service that will reproduce them with 4,000 or more lines of resolution at prices ranging from $5 to $25 each. If you have lots of slides to produce, it may pay to buy or lease an ultra-high resolution recorder yourself. General Parametrics, Bell & Howell, Matrix and CalComp offer 2,000 to 6,000 line units at prices ranging from $6,000 to $15,000.

Here's a way of judging what resolution you'll need: 2,000 lines will look good in the Boardroom; 4,000 lines will be crisp at the annual stockholder's meeting and 6,000 lines is good enough for full-page color reproduction in IBM's annual report.

We're still stuck with traditional publishing methods when it comes to color, but you can send your page-makeup program's files directly to printshops that have PostScript-equipped models of Linotronic or Compugraphic typesetting machines. The printer can then insert, or "strip-in," your color graphics wherever you've left space for them.

RECOMMENDATIONS

Of course, the purpose in building the graphics capabilities of your hardware is to provide yourself with a foundation for the kind of graphics applications that can contribute to the everyday operation of your business. That's an upcoming column's worth of discussion. In the meantime, here's a list of programs that'll give you the most capability for the money and that also work best together.

First, Xerox's *Ventura Publisher*—because it's super-efficient at publishing standardized business documents, works with the files created by your word processor, doesn't require an AT, and can incorporate images from any of the other applications in this list.

For presentation-quality business graphics—*GEM Graph, Draw* and *WordChart—because they share Ventura's* user interface, come with lots of pre-drawn artwork and layout templates, support the same fonts as *Ventura* and support the 640×480 screen resolution of the new Paradise Autoswitch.

For freehand illustration—*Publisher's Paintbrush*—because this latest incarnation of the de-facto standard *PCPaintbrush* allows you to illustrate at maximum PostScript resolution, "capture" images from any MDA, CGA or EGA screen, edit at four levels of "zoom" for fine detail work, accept images from image scanners and work with several film recorders.

For technical illustration and engineering drawings—*AutoSketch*—because it supports a wide range of plotters, works with most dot-matrix printers, offers professional-level drawing/editing features and accuracy and has a "point & click" user-interface that is as easy to grasp as the other programs in this list.

Brightbill Robert's *Show Partner* is in a unique category. It can take EGA screen images from any of the programs above (or any other PC program) and turn them into an on-screen animated "slide show." It's so well designed that you can put together your first attention-getting show in a short afternoon. *Show Partner* also has a hidden talent that can be a useful contribution to your other graphics tools. It turns a four-color, 320 X 200 dot CGA image into a 16-color 640 X 350 EGA screen. *Publisher's Paintbrush* can take it from there. For a mere $79.50, how could you go wrong?

By the way, you don't need to be an artist to make use of any of these programs. Most of them come with basic image libraries for use in business publications and presentations. Thousands more of these "ready-made" pictures, typefaces, borders, maps and technical symbols can be purchased on disk. Soon you will be able to download them through your modem or read them from a compact laser disk. Moreover, any of the PC-compatible desktop scanners will let you take art from the printed page and edit it in *Publisher's Paintbrush*. As Tom Lehrer said, "Plagiarize! Let no one else's work evade your eyes. That's why the good Lord made your eyes!"

Now all we need is a program that will let us "trace" the dot-formed paint image into a drafting program so that we can turn it into a technical drawing; then rotate, distort or re-scale it without impaired image quality. You can do that already with Adobe's *Illustrator* on the Mac. The PC can't be far behind. Can it? □

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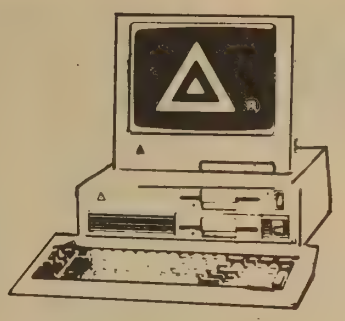

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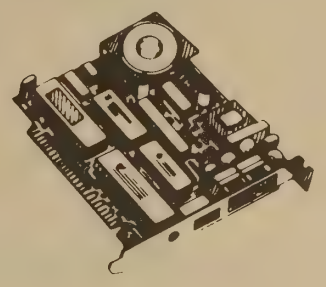

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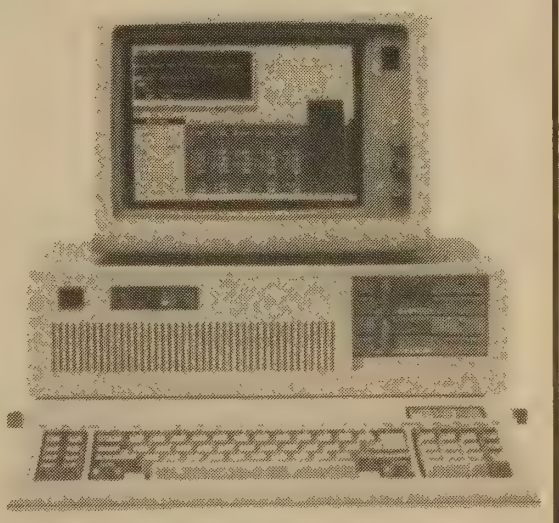

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Job Control for UNIX

By Bennett Falk

There was a time when a computer, in order to be powerful, also had to be big, clunky, and expensive. The people who used such computers quickly developed a finely honed understanding of the need for "job control": the computers of that generation were too expensive to be left idle, and too big for a system administrator to depend on face-to-face meetings to tell users what they could or could not do at certain times of day.

Consequently, "job control systems" emerged which allowed the computer administrator to decide the sequence in which jobs would be run, the number of jobs that would be allowed to run concurrently, and the relative priority of jobs queued for execution. Users, for their part, were faced with the task of using a "job control language" to describe as exhaustively as possible what they wanted the computer to do. Job control languages were a great advance over stacks of punch cards, but still a far cry from the less confusing interactive command interpreters which are common today.

While big computers are still around and still use such job control tools, computer power is now available in more compact, less expensive form. Users of the smaller, cheaper machines may not initially perceive the importance of job control—in the modern office with a medium-sized business computer, idle time is rarely deemed critical, and most of the users can yell at each other personally when they need to use some scarce resource, such as a tape drive or a modem line.

ON THE NEED FOR JOB CONTROL ON MEDIUM-SIZED SYSTEMS

All the same, the new generation of business computers has its own problems. Many of these stem from the difficulty of assessing just how powerful the computer at your fingertips really is. Everyone knows these machines are "multi-user" and "multi-tasking." However, nobody seems to be quite sure just how many "multi" is. All too often, people readily assume that any machine capable of doing more than one thing at a time must be just about infinitely powerful. Clearly, this is not so. On the other hand, given the mix of activities to be performed on small UNIX computers, judging what a reasonable system load might be is no mean feat.

This problem rapidly becomes a matter of job control: can the overall system load be balanced to suit the capabilities of the hardware—without inconveniencing users? In most cases this means deferring processes that require little operator interaction to a time when the computer is relatively inactive.

UNIX itself contains some tools to do this sort of work. At one extreme, the system imposes limits on both the number of simultaneous processes and the number of concurrent processes per user. Presently, however, at most UNIX installations, these system limits are set well beyond the capacities of the hardware. Computer performance will typically degrade to unacceptable levels long before the process table is full or the maximum number of processes per user is reached. Changing these limits is certainly possible, but finding a configuration that works for all the different patterns of use the computer must bear may be difficult.

Apart from system-wide parameters, the UNIX command interpreters or "shells" serve as a kind of job control language, though they usually function more to provide a convenient environment for users than to balance the demand for system resources. Besides, the UNIX command interpreters offer only scanty support for batch processing, apart from the ability to put jobs in the background. The shell is designed primarily as an interactive command interpreter, and this may actually impede sound work management on systems whose work load is largely independent of operator intervention.

Other UNIX utilities allow users to control the impact of their work on the overall system load. On most systems, any user may schedule processes for future execution using "at" and "cron" or, with the "nice" command, voluntarily set a lower execution priority for any command that might monopolize the CPU. Other utilities allow any user to check on the current status of processes ("ps", "sar", or "gsar"), to wait for background processes to finish before continuing in foreground ("wait"), and to kill unnecessary or errant processes ("kill").

But these built-in features don't really provide a systematic alternative to interactive processing; the native UNIX batch processing capabilities are patchwork at best. There is, in effect, a "work management gap" in the UNIX world.

TASKFORCE V

TaskForce V (Taskforce Software Corporation, 364 16th Ave., San Francisco, CA 94118) is a commercial software package that addresses this problem and brings job control facilities to UNIX. *TaskForce V* is a set of system management tools for users and system administrators alike. At their best, the tools provide an interface to operating system services that is at once easy to use and capable of moderating the system's overall work load.

TaskForce V runs on computers with UNIX System V and its optional Interprocess Communication (IPC) extensions. This may sound ominous, but *TaskForce V* has been ported to machines as small as the PC-AT running Microport.

TaskForce V has three components: a menu development system, a command interface known as "the Prompter," and a set of utilities that let the system administrator manage the flow of activity through the system. These components can be used independently of each other, but together they bring full scale work management within the grasp of even relatively inexperienced system administrators.

The TaskForce Menu System allows the administrator to build an interface for any user or group of users on the system. In a tightly controlled system, the interface provided by the menu system (and the Prompter) would take the place of the UNIX shell for most users. The menu interface can be "task specific," enabling the user to maneuver through a set of commands that are directly relevant to that user's work. TaskForce menus (and the Prompter described below) reference a "global task table" which defines not only which commands can be built into the menus, but the user and group permissions attached to both commands and menu items. The global task table is relatively independent of the job control system itself, but can be used to define user access to job control facilities.

The Prompter is also an interface tool, but one that is specific to individual commands. It is typically used to execute any command that can be run from the UNIX shell. But in place of the sometimes painfully terse UNIX command line, the user is prompted with a full-screen form that outlines the structure of the command line complete with any options attached to the command being executed. The full-screen form provides ample space for explanatory material, making the Prompter an excellent tool for becoming familiar with UNIX commands and their options. In addition, the system administrator may incorporate defaults in Prompter screens to ease the user's burden from the outset.

Finally, *TaskForce V* includes of a set of utilities that constitute the work management system. These utilities allow the system administrator to define, modify, or delete the various components of the job control system. Also present are utilities which govern maintenance of UNIX user and group IDs, as well as a profile describing each user's access to commands while working in the TaskForce Prompter or Menus. Any of these utilities can be run from the UNIX shell, but in practice they are probably best used from the menu system and Prompter screens provided with the package.

Bennett Falk is an Application Specialist for BASIS, Inc., and has been enthralled by UNIX, its uses and users, for quite some time now.
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HOW IT WORKS

TaskForce V organizes system activity into "jobs" which are ordinarily placed in queues and executed in sequence. It is, in effect, a complete system for unattended batch processing on UNIX machines.

The first step in building the work management system is the creation of job queues, job descriptions, and spool descriptions for the work to be governed by *TaskForce V.*

"Job queues" are just that: First-In-First-Out queues of commands to be executed. UNIX has traditionally used queues for certain kinds of activity (such as printing and automated communications between machines). *TaskForce V,* however, allows the system administrator to create queues for the execution of any command—naturally, care should be taken not to queue any command that requires operator input.

In creating a job queue, the system administrator has the opportunity to specify the number of jobs the queue can hold, the default priority level for selecting which jobs in the queue to run, the UNIX "nice" value to be used, the number of jobs that can be run concurrently from the queue, a description of the queue, and a queue name.

"Job descriptions" are basically templates that describe how a job is to be done. The description itself consists of the name of the template, the command to be executed, text describing what the job does, directions for handling both output and status messages, queueing priority, the name of the queue to which the job is assigned, the job's execution priority (UNIX "nice" value), the degree of detail to be kept in the job log, and the UNIX directory from which the job is to be executed. While job descriptions are potentially complicated things, just about every component of the template is optional except the name of the job description. Even the command line itself is not absolutely necessary.

"Spool descriptions" are *TaskForce V* templates that describe what is to be done with any output from a queued job. These consist of a name, a reference to another template or a UNIX command, a title to be displayed in Prompter screens, a short explanation of the spool description, and any command line options needed for output processing.

Once these structures are in place, the system administrator can control the level of activity on the system by manipulating the job queues. Queues may be stopped or started at the administrator's discretion. A common application is to dedicate a queue to night processing activity and allow users to submit requests to the queue throughout the day. At the end of the day, the queue is started and the jobs are processed in sequence during the night.

By changing factors like the "priority level" or the "activity level" of a queue, the administrator can tune the queue to respond to the work load on the computer at any given time. If, for example, an unusually long job is causing a backlog in a queue whose activity level is set to one, the administrator can relieve the bottleneck by increasing the activity level to allow more than one job at a time to be executed from that queue. Similarly, raising the priority level of a queue will defer jobs below the new priority level for later execution.

With the *TaskForce V* job control system, using the computer is basically a matter of creating jobs and submitting them to queues. Although these things could be done from the UNIX command line, this activity is probably best left to a specialized interface, such as the menu system or the Prompter, enabling the user to take advantage of any default values established by the adminstrator. In most instances, working with *TaskForce V* will look very much like working with any other menu-driven or form-driven application.

The job control facilities in *TaskForce V* are very sound and a worthy addition to any UNIX system that has any batch processing requirements at all. Products like *TaskForce V* do face an uphill battle in becoming widely accepted. The issue, oddly enough, is not the idea of job control itself—gradually, the need for job control is being realized across the whole spectrum of multi-user computers.

The real challenge for *TaskForce V* and products like it is to achieve some degree of intergration with existing applications, which, typically, are already menu-driven to some degree. For example, no one who does accounting wants to enter transactions using one menu system and then start an entirely different product just to queue the task of posting the day's transactions. It is more to the point to have the queueing commands embedded in the existing application and more or less out of the user's way. *TaskForce V* is admirably suited to this sort of integration: it would be a relatively straightforward thing to include calls to the job control system in any application menu that's open to modification.

However the problem of integrating job control facilities with existing applications is resolved, job control software (and *TaskForce V* in particular) will continue to be a hot item as the UNIX community looks for ways to improve performance. □

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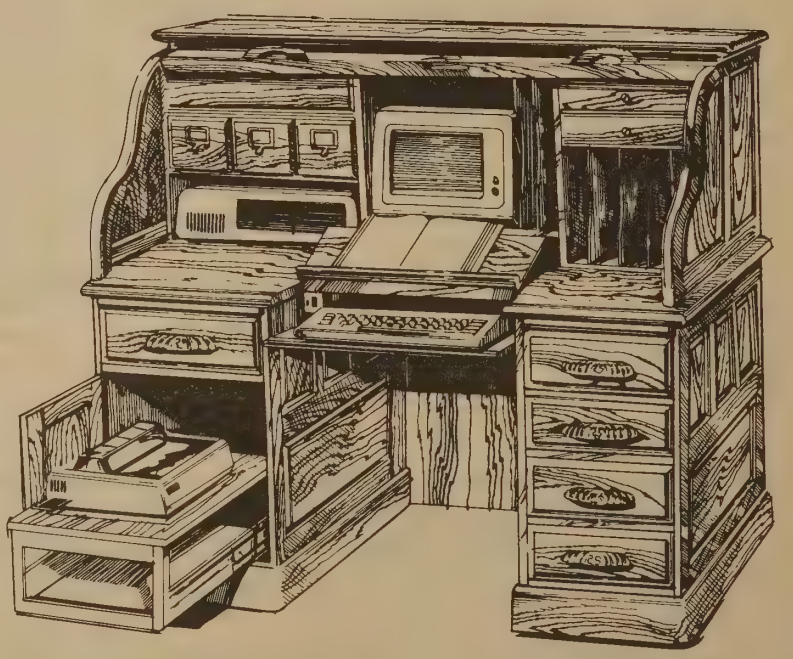

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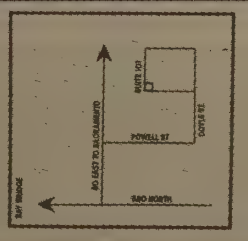

Report From The Commodore Show

By Matthew Leeds

I love going to trade shows. I've a variety of reasons for this strange attitude. Partly I just like to shop. I've got a great love for new gadgets and gimmicks, new software and hardware.

The Commodore Show is one of my favorites. I used to be a part of producing it, and it's all Commodore products. The show has moved from the Cathedral Hill Hotel, where it used to produce crowded conditions reminiscent of Grateful Dead concert ticket lines, to Brooks Hall—a very positive step. Although the show becomes very busy at times, there is always room to move in the aisles.

As always there was an excellent roster of speakers: Jim Butterfield, the Guru of the 64; Brian Dougherty, president of Berkeley Softworks (*GEOS*); Jim Goodnow, author of the Aztec C compiler; R. J. Mical, the father of Intuition; Richard Immers, wizard of all Commodore DOS; and Louis Wallace, programmer and writer of hundreds of national articles. Compliments to the staff of the show for continuing this valuable service.

This year the show was an interesting mix of veteran vendors, new developers, discount mass liquidators, local retailers, and a few oddly out-of-place companies. I'm not sure it makes sense to have someone selling stun guns or Macintosh software at a Commodore show . . .

On to the interesting products I saw at the show. Mostly I'll cover products I had not seen at other shows. Heading the "I finally believe it exists" list was WordPerfect's booth showing the Amiga version of *WordPerfect*. Rumor has finally been put to rest. The Amiga version retains all the features of the IBM version 4.1, and adds an Intuition interface. Spelling checker, thesaurus, merge, macros, auto index/table of contents generation, columnar output, and file compatibility with the IBM version all gives the Amiga *WordPerfect* program a hefty leg up on the existing market of word processors for the Amiga. The product should be shipping about this time, for a suggested retail of $395 — well above the standard price for Amiga software. I'll be interested to see if Amiga users will accept IBM prices for software.

Inter/Active Softworks wants to change the way you see text. They've produced a program called *The Calligrapher*. It's a font design package for the Amiga with a list of features that would make a type designer turn green. It lets you design fonts in up to 16 colors, with a maximum size of 256 × 160 pixels. All the fonts conform to the Amiga text standard (except multi-color fonts, and they've applied for an IFF format registration to cover their system), and are compatible with any Amiga program that uses fonts. They also provide a software patch program to enable other programs to use multi-color fonts. The heart of the program is the font editing section. Fonts can be spun, flipped, rotated, sized, pattern filled, italicized and underlined. On-screen adjustments of kerning, spacing, width and baseline make it easy to produce professional-looking fonts. A full list of *The Calligrapher*'s features is far too long for this article, but I'll be doing a full review in a later issue.

Ronin Research & Development was showing a slick 68020/68881 board. This is a card that plugs into the 68000 socket inside the Amiga. Two versions are available: 1 7.16MHz and a 14.32MHz. The board also provides a 32-bit memory bus, and a memory board with up to eight megabytes is also available.

S. Anthony Studios showed their PostScript software tools for the Amiga. They have a variety of products that can be used to create PostScript formatted output, such as typesetting formatters, downloadable fonts, screen dumps, *Aegis Draw* plots, and a PostScript paint program.

MaxiSoft has been renamed Oxxi, Inc. They were showing a new version of *MaxiPlan*, called *MaxiPlan Plus*. They have added macros, password protection, new chart and graph options, an improved database capability, and a host of other features. They were also talking about *Encore*, their keyboard and mouse macros recorder, *ShortCut*, an abbreviations macro program, and *Wow!*, a disk cache program.

The Basement Boys were there with the latest version of *Fast Hack'Em* for the 64. The Starpoint alumni have been spinning off in various directions, creating new companies as they go. Scott Blum is now the VP of Complete Data Automation, and has promised to send me his new spelling checker for the Amiga.

Brown-Wagh was showing *TV*TEXt* for the Amiga and *Publisher 1000*. *TV*TEXt* had a very friendly user interface, and some powerful text rendering capabilities, but we will have to wait several more months for the page and wipe section. *Publisher 1000* looked great, with a professional user interface and a logical sequence for editing and printing.

Epimetheus Corp has created an innovative ROMdisk hardware package for the 64. This is a 128K bank of EPROMs, built into an EPROM programmer. It comes with all the required software to move your favorite programs onto the EPROMs. To your computer, the ROMdisk looks like a disk drive, but programs load over 30 times faster. They also offer user port extension cables, user port "Y" switches, and a hardware/software package that lets you use your 64 to control the furnace in your home.

Elias Engineering showed *Circuit Maker* for the Amiga. This is a design tool for simulating digital circuits on the computer. You are provided with a library of ICs and the ability to create custom designs as well. A test layout can be described using an array of symbols positioned on-screen. The logic can then be tested using waveform and function generators simulated by *Circuit Maker*. Simulated test equipment includes an oscilloscope and logic analyser.

Intreptec had what was my favorite new product for the 64, Sonar 64. This is an ultrasonic measuring/detection hardware/software package. It includes a sonar module, interface card, software, and manual. The sonar module is similar to that used on auto-focus Polaroid cameras. The included software offers several functions — proximity measuring, intrusion detection, and robotics. Very useful in many applications, and fun to experiment with as well.

Infinity Software announced *Galileo*, a desktop astronomy program for the Amiga. If you remember *Sky Travel* on the 64, then you've got the idea. *Galileo* looks to be a real winner, with educational as well as entertainment value. The author, Mike Smithwick, works as an astronomer and astrophysicist designing advanced space flight simulators for NASA's Ames Research Center.

Not shown at the show was Commodore's new Amiga, the A2000. Don't hold your breath waiting to buy one of these, as I've been hearing word of delays in FCC approval — shades of Genlock, LIVE!, and the Sidecar. The machine, however, looks promising. □

Matthew Leeds is a writer/photographer specializing in high technology. He has been involved with Commodore computers since 1983. *Copyright © 1987 by Matthew Leeds. All rights reserved.*

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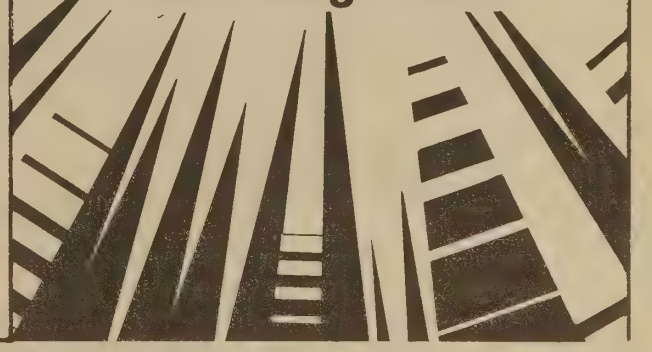

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The ST At The Faire

By Helmi Kobler

Spending 18 hours on the hot, cramped floor at San Francisco's West Coast Computer Faire can do terrible things to people. After a few hours in the midst of wall-to-wall people and ear-piercing racket, heads begin to spin, eyes glaze and ears ring. This, coupled with the fact that the city was enjoying the most gorgeous weather it's had in months, tends to make you wonder why you ever got a computer in the first place. Nonetheless, this year's Faire was an experience, and despite the sea of PC clones, spreadsheets and CAD packages pervading the floor, the ST seemed to have itself a respectable following.

In fact, my only disappointment as far as the ST was concerned came from Atari's decision not to exhibit. Instead of buying its own booth space, Atari was represented through a few local user groups and the GEnie booth—a far cry from the impressive set-ups I've seen at other shows.

With all the recent clamor over the Mega STs, laser printer and PC clone, this Faire would have been a great opportunity for Atari to wave its flag, toot its horn and generate tons of publicity. This was done at COMDEX and CES a few months back; why not in San Francisco? With a slew of other big-name companies absent this year, Atari would have been the talk of the show and the darling of thousands of show-goers. What happened to that aggressive, go-get-em Atari style this time?

Aside from this gripe, however, I found plenty to be pleased with. WordPerfect Corporation, for instance, was demonstrating an ST version of its popular *WordPerfect* software, putting to rest Jerry Pournelle's remark that there are no professional word processors available on the ST. *WordPerfect* looks like a super package (Pournelle, in fact, uses it himself) and I can hardly wait for its June release.

Among other features, it has the GEM interface, footnote and endnote handling, macros, math columns, outlining, multiple text columns, table of contents and index generation, a thesaurus, a 115,000-word spelling checker—*and* it's file compatible with *WordPerfect* 4.1 and up on the IBM. Zowee! The suggested retail price for *WordPerfect* is, er, $395, but expect to see that heavily discounted to around $200 in the stores. You can reach WordPerfect at 288 W. Center Street, Orem, Utah 84057. The phone number is (801)255-5000. Tell them how smart they are to support the ST!

More exciting ST stuff was found at Antic Publishing's booth, where people lined up to get a look through Antic's StereoTek 3D glasses. You can stop thinking of Antic as only a magazine publisher (*Antic, START*); it's getting into a lot of software publishing too. In fact, Antic claims to publish the largest library of ST software around, and in looking through its catalog, I can see why. Popular software such as *Flash* and *CAD-3D* has come from Antic, but there's more on the way.

Shown at the Faire was Antic's *Cyber Studio*, an incredible CAD/Animation package made up of Tom Hudson's *CAD-3D 2.0* and Mark Kimball's *Cybermate* software. *Cyber Studio* lets you design 3D objects with all sorts of effects and then animate them at up to 60 frames a second. The package also supports Antic's StereoTek glasses, so you can view everything in true 3D. I'll talk more on these after they've been released (mid-April, says Antic) but in the meantime you can pick up any recent *Antic* or *START* magazine to get more information. Or call Antic's Customer Support department at (415) 957-0886.

Also at the Faire was Data Pacific, maker of the Magic Sac, that wonderful little cartridge that lets you run Macintosh software on your ST. Though the Magic Sac didn't draw the same crowd as it did during last year's Faire (where it was introduced), there was still a lot to get excited over. Data Pacific announced that version 4.0 of Magic Sac would be available soon—and should be out as you read this. Besides fixing a few bugs from earlier Sac versions, 4.0 supports 800K floppy disks, works with the Mac's Finder 5.3 and even runs on SM1224 color monitors.

Better yet, however, Data Pacific has plans to sell an interface box that turns a regular ST floppy into a Macintosh drive. Magic Sac owners have been haunted by the fact that the ST and Mac drives used—incompatible formats. To run Mac software, you'd either have to download it over the phone or you'd have to literally connect a Mac and ST together and transfer data through a cable. Besides being a hassle, this method ruled out the use of any copy-protected software. Now, with this neat interface, you can just scoot down to your local computer store, purchase a Macintosh package and run it right out of the box on your ST. If this interface actually works, the Magic Sac will no longer be the novelty item it is now. Data Pacific says its interface should be out by the end of April, although no price estimate is available yet. Reach the company at 609 E. Speer Blvd., Denver, CO 80203. The phone number there is (303) 733-8158.

But on to other things. Mindscape has finally released an ST version of *Balance of Power*, the classic simulation of world geopolitics. The name of the game here is geopolitical prestige. Representing either the United States or Soviet Union, your goal is to make as many friends in the world as possible, thereby increasing your nation's prestige, while avoiding a nuclear confrontation with the opposing computer superpower. This is no idle feat, and I guarantee that after a few games of *Balance of Power*, you'll have new-found respect for those poor souls on Capitol Hill and in the Kremlin.

You deal with 61 other countries, using everything from troop intervention, economic and military aid, treaties, diplomatic pressure and CIA/KGB-type underhandedness to influence them. To survive, much less win, you have to establish a balance of power with your opponent, where you come to respect each other's spheres of influence. For instance, you'd be asking for complete nuclear annihilation by sending military aid to East German insurgents. You have to be extremely delicate in most cases.

Obviously, *Balance of Power* has a lot of depth, making it a very involved and time-consuming game. Trying to play it without reading its 87-page manual is a waste of time and once you finally have a feel for it, you'll find that full games take hours to complete (if you don't blow yourself up, that is). If you have the time for *Balance of Power*, however, it can be a lot of fun. And if it gets addicting, you can also run out and buy *Balance of Power*, the book. Written by the game's author, Chris Crawford, the 300-page book goes into all the little intricacies of geopolitics and offers winning strategies for those aspiring Secretaries of State. The book is $10.95 from Microsoft Press, and the game is $49.95 from Mindscape (3444 Dundee Road, Northbrook, IL 60062 (312) 480-7667). The game works with color and monochrome monitors.

Electronic Arts has released The Software Toolworks' *Chessmaster 2000* for the ST. *Chessmaster* comes to the ST community as an already-acclaimed product. It's won the 1986 U.S. Open Personal Computer Chess Championship, and is the official computer chess game of the U.S. Chess Federation (the Federation gave *Chessmaster* a play rating of 2,018—the closest computer challenger is Hayden's *Sargon III*, with a rating of 1,850.)

The game is really sharp. Twelve levels of play are provided, from "newcomer" to "grandmaster," and just about every bell and whistle is included. The chess board can be viewed in two or three dimensions (the 3D color board is beautiful) and there's even optional voice synthesis during play (*Chessmaster* exclaims "Ooh! Ya got me!" as its pieces are captured). Moves can be entered by mouse, or through keyboard in descriptive, algebraic, and computer notation.

There's an analyze mode where Chessmaster displays the moves it's considering, giving you a "behind-the-scenes" perspective. A second disk featuring 100 classic games is also included. For beginners, there's a "teach" mode where the program displays all possible moves in a given situation, and the well written manual includes an interesting history of Chess and a tutorial written by the U.S. Chess Federation. If you're a chess fan, you'll be cheating yourself by avoiding this game. It works with color and monochrome monitors and is sold for $44.95 through Electronic Arts. Reach them at 1820 Gateway Drive, San Mateo, CA 94404. □

Helmi Kobler took his first step into the computer world in 1983 when he walked out of Macy's with an Atari 800 in his arms. Still an Atari user, he's now inseparably attached to his ST. He can be reached through MicroTimes *or e-mail <helmi> on The WELL at (415) 332-6106.*

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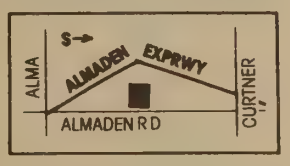

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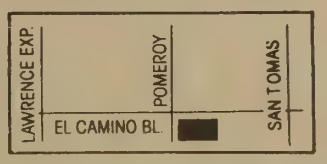

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Real Science On CP/M Computers

By Robert D. Athey Jr.

This is the first of a two-part series on how those "little" and "unsophisticated" CP/M computers are being used for scientific applications. While these machines are probably used mostly for writing these days, some of us are science writers who need the computer to do some calculations for the benefit of our readers—the science community who want to see the results of experiments, with interpretation of the data to insure that the results are meaningful. The first column will deal with how to assess the relative meaningfulness of a particular set of data, and how easy it is to do the calculations on the standard spreadsheet. The second column will go into the graphics the scientists like to see, and how to generate these graphics on a CP/M machine. It will also list some commercially available engineering programs for civil and chemical engineering applications.

SCIENTIFIC CALCULATIONS IN CP/M

Most scientific calculations are not difficult. The calculation I've done most over the past 25 years has been the simple determination of total solids (or non-volatile, as we say in the paint trade) content—usually a situation in which we have solutions or latex or paint, consisting of a certain amount of fluid carrying a certain amount of solid. To make up a recipe (more frequently called a "formulation"), we are usually concerned with how much of the solid goes into the mixture. The supplier will usually tell us what the range should be (48 to 50% solids), but doesn't tell us exact quantities. Usually the only penalty for putting in too much solid is that the cost is too high or the viscosity isn't right (too much like peanut butter instead of honey), but some recipes will boil or even explode if you put too much of an ingredient in. As you might expect, I have a spreadsheet template for calculation of solids content, an example of which is shown in Figure 1. (I call the file where the template is kept SOLIDS.PCT for easy reminder. Whenever I use it, I make the spread sheet program print to a new file for editing and printing with *VDO.COM*, the little word processor I keep on the spreadsheet data disks. Then, I can exit the spreadsheet without saving the data, and keep the template unfilled).

In situations where you have several determinations of some number (like the total solids percentage), most scientific publications will need a measure of the reliability of your average, and most of them don't want all your raw data for reasons of space. The statisticians have agreed on something they call the "standard deviation" for estimating the precision of a collection of measurements that have been averaged. The idea is that since no measurement will reflect the exact "true" value, several tries are made and the results averaged. (Multiple measurements don't agree because lots of little errors affect the final result, no matter how well you do the work. I've often told the people I've trained in lab manipulations that I don't expect exact duplications of measurements, and indeed find them suspect; I expect to see scatter in data, and therefore want to see several tries and an average all reported.)

Once you have your test results, it's time to do some manipulations of the numbers to "estimate" how close the average is to the "true" value. The model used by the theoreticians is the "Bell" or "Gaussian" curve; the data reporting is done as the average, plus or minus the "standard deviation" we mentioned above. For a "quick and dirty" comparison of two sets of results, if their averages lie within one standard deviation of each other, they are the same.

The statisticians' theory says that the true value will be within the range of one standard deviation 2/3 of the time, within two s.d. about 90% and within three s.d. 99% of the time. The template for standard deviation calculation is shown in Figure 2. We store the template in a file called STND-DEV.PC, and (again) print the results to a renamed new ASCII file for later use.

This template is expandable or contractable, in the current form, by simply adding or deleting lines in the midst of the X and Delta X Squared columns; all the calculations adjust themselves. Do remember to copy the formula for the second column into any new lines generated. This will work for up to about forty data items, in my experience. There are some public domain versions of standard deviation calculators, but they do not always agree among themselves, as some statisticians use a slightly different formula for the calculation. I choose the one that maximizes the size of the s.d.

Another fault of the s.d. calculation routines is that the data are lost after the calculation, and I want mine to be retained in case I made an input error, or want to make some other sort of change.

SL-MICRO REVISITED

For more sophisticated statistical data treatment, you can write your own programs, rather than using the spreadsheet. While there are several such programs in the public domain, I've tested some of them and found them wanting, so be careful.

About two years ago, I ran across a program called *SL-MICRO* that met and surpassed all my expectations for CP/M statistical programs. It is a modular collection of programs that run a massive data matrix—up to 3024 numbers in a rectangular array. It has modules that do Analysis of Variance (automatically checking linear and cross terms), Regressions, Correlation Matrices, and other goodies for the statistically sophisticated. The disk and documentation are available from Questionaire Service Co. (P. O. Box 778, Lansing, MI 48823, 517/641-4428). Alice and Ray Kalush wrote the package for use by social

FIGURE 1

TOTAL SOLIDS CONTENT DETERMINATION

SAMPLE			
WEIGHTS			
Pan + wet sample			
Pan empty			
wet sample	c7 = c4 – c5	d7 = d4 – d5	e7 = e4 – e5
Pan + dry sample			
Pan empty	c5	d5	e5
dry sample	c11 = c9 – c5	d11 = d9 – d5	e11 = e9 – e5
% solids	c13 = 100*(c11/c7)	d13 = 100*(d11/d7)	e13 = 100*(e11/e7)
Average % solids	c15 = avg(c13:e13)		

Bob Athey has over 20 years of experience working on computers and runs his own company on chemical consulting and contract research. He can be reached through MicroTimes or at (415) 526-3541.

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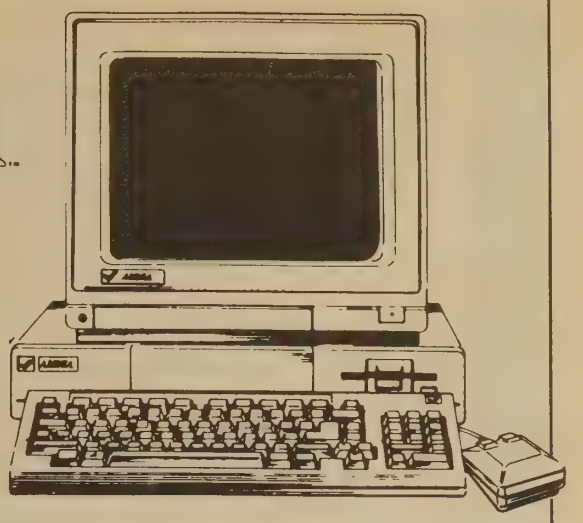

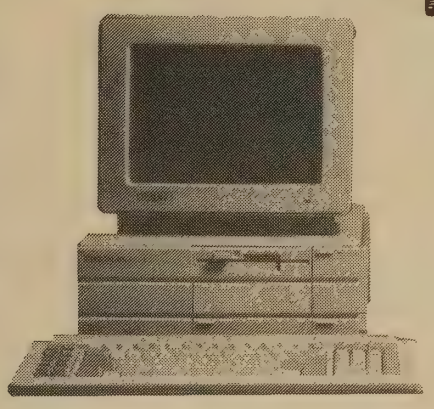

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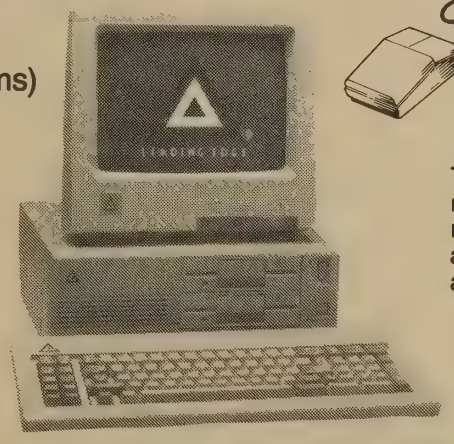

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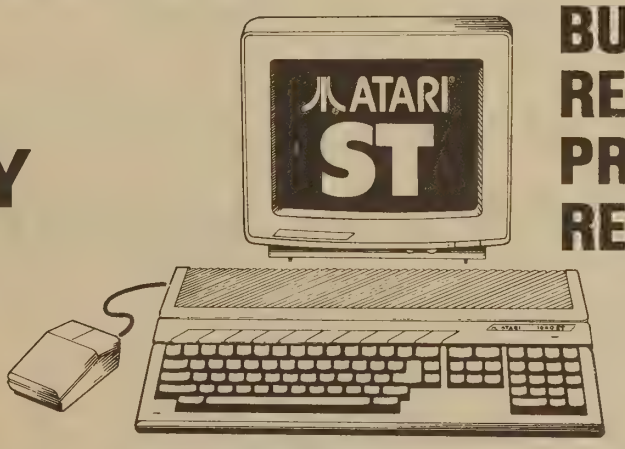

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FIGURE 2

Standard Deviation Calculation

	X Values	Delta X Squared
		d3=(c3−c12^2
		d4=(c4−c12^2
		d5=(c5−c12^2
		d6=(c6−c12^2
		d7=(c7−c12^2
		d8=(c8−c12^2
Sum X Values	c10=sum(c3:c8)	d10=sum(d3:d8)
No. X Values	c11=count(c3:c8)	
Average X	c12=c10/c11	
Variance	c13=((c10^2)−d10)/(c11−1)	
Std. Dev.	c14=sqrt(c13)	

scientists, and were surprised that "hard science" uses were possible when I reviewed it for *MicroTimes* some time ago. They provide support by phone, but it pays to know statistics well enough not to be wasting money on the phone bill when you should be reading the manual.

SL-MICRO is easy to use. You make up your data set into an ASCII file of a rectangular array of rows and columns. Each row can be one experiment, and each column is either a control parameter or a measured result. My technique for using *SL-MICRO* has developed over the past two years into a search for the best mathematical model for a process I'm studying by doing several runs of the data through the program. You control each run of the program with a pre-written list of commands in a special ASCII file made up according to the Kalush format guidelines. The program requires you to give it the name of the file with the commands, and then it crunches away reading the command file a line at a time—performing that command, reading the next, and going on through making up a new file called SLM.PRN which contains the results. You can print the results by using *VDO* or *NEWSWEEP* (I prefer *VDO* in case I want to edit).

TIPS ON USING SL-MICRO:

1. Use a spreadsheet to make up the data files, so formatting is made easy (x values always in spaces 4 to 10 in a column, for instance). Do remember to turn off the calculation mode of the spreadsheet to make input faster.
2. Print the data spreadsheet to file (that makes it ASCII).
3. Use *VDO* to make up the command file.
4. Run the Analysis of Variance (ANOVA) mode of *SL-MICRO* as the first trial, so you can choose the important variables for the Regression model equations. I was amazed to find that a model we'd been happy with in two paint journal publications was improved upon by inclusion of cross terms by *SL-MICRO*.

Next month's column will deal with doing scientific graphics on the "little" 64K CP/M computers. Some of that is a simple "draw it to see if it's a straight line" sort of thing. However, more complex graphics, such as contour plots, can be done.

AND NOW, A SLIGHT DIGRESSION...

MicroPro has announced that it will indeed support the CP/M *WordStar* and *NewWord* users with an updated version of *WordStar* 4, slated for beta testing in August or so. I look forward to that.

In past columns, I have extolled the user groups, noting that they're the chief source of support for CP/M users at this point. Machine-specific CP/M user groups are on the wane, but alternatives are springing up. I've already mentioned the merger of several CP/M groups in the Santa Cruz area into CP/MUSC, and today's mail tells me of the merger of KUG (the KUGRAM people) with the Apricot and the Adam users to form the W/PUG (word processors' users group). The boards of directors of BAMDUA (Morrow Design Users in Berkeley) and BAKUP (Bay Area Kaypro Users and Programmers) have initiated discussions on a possible merger. My feeling is that this is probably a good thing, since user groups are invaluable Mutual Aid Societies and social milieus, and the bigger the group, the more resources are available.

We'll be speaking at the May meeting of the East Bay FOG, and look forward to meeting some of you there. □

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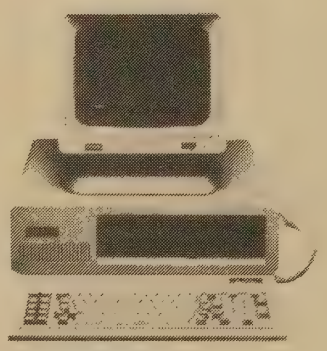

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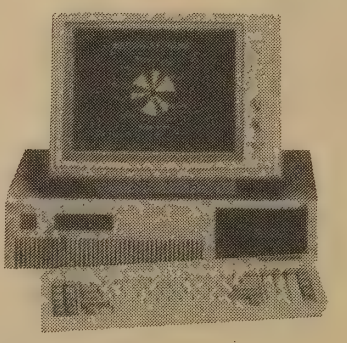

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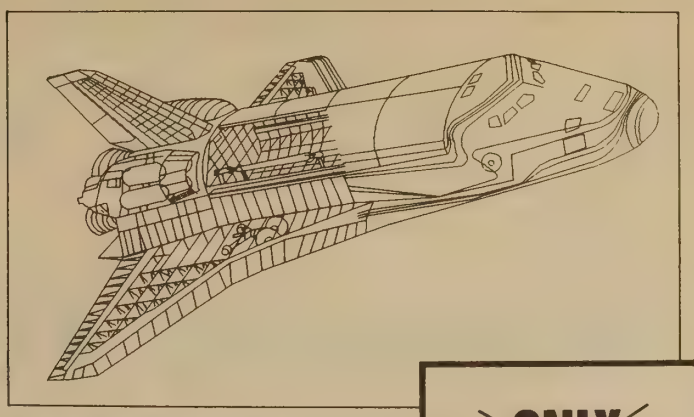

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Networks For Databasers

By Warren Sirota

Each January, it seems, pundits predict that the coming year will be the "Year of the LAN." This has happened for three years running now, and is beginning to remind most of us of the boy who cried wolf. As with the wolf-crying boy, however, one ignores the message at one's peril. LANs and other forms of networks have been slowly but steadily sneaking into the PC world, and the need for database programmers to deal with these networks is increasing. When data from diverse places can be brought together and integrated, the economic benefits may be able to better justify programming costs.

USING dBASE ON A LAN

Shared files on a LAN are stored on a device called a **file server,** which is usually an AT with a large hard disk. All of the computers have network interface cards which are connected together with cables. When a user boots up his computer, presumably something in the AUTOEXEC.BAT file will cause him to **log in** to the LAN. The person operating the PC may have to know a password in order to complete the login successfully.

In order to use the network's *dBASE*, the workstation needs to have a program called ACCESS installed on its own disk. The user gets into *dBASE* by typing the command ACCESS from the DOS prompt, followed by some parameters that tell it where to find the network *dBASE* version. If you're setting this up for someone else's use, you can put the required form of the command into a batch file for simplicity.

When the user types in the ACCESS command, several things happen. First, the multi-user *dBASE III+* program is loaded into the memory of the user's computer. This differs from loading single-user *dBASE* into memory from your own hard disk only in that it is slower. The bytes are coming into memory over a cable in little protocol packets to protect them, so that you don't end up with a program in your memory that consists of a cross between your *dBASE* program and the *1-2-3* that someone else was trying to load (the programmer's equivalent of *The Fly*). It takes time to stuff a big program like *dBASE* into protocol packets, send it over relatively slow cables which have other traffic on them, and unpack it carefully into your computer's memory. Hence, initial load time on a *dBASE* multi-user application is likely to be slower than if it were loaded directly from the PC's own hard disk.

Copyright ©1987 by Warren Sirota. All rights reserved. *Warren Sirota is a database consultant with experience in a wide range of languages. He also composes and programs computer music. He lives in Oakland and can be reached at (415) 482-3979.*

Figure 1: The problem with simultaneous updates.

(a) Original Record in Database:

QUANTITY	UNIT COST
10	$9.99

(b) What *you* think you changed it to:

QUANTITY	UNIT COST
100	$9.99

(c) What *she* thinks she changed it to:

QUANTITY	UNIT COST
10	$9.57

LOCKING

The file server looks like an extra hard disk to the user. In other words, a PC with floppy drive A: and hard drive C: would suddenly appear to have another drive, drive D:. Once the *dBASE* ACCESS program is loaded into the computer's memory, the user can issue any commands he or she wants against the common data. To access a file called ORDERS on the file server, you would simply type in USE D:ORDERS, just as if the file were on a second hard disk on your own computer. Suppose, though, that there was someone else on the LAN who wanted to use the same file at the same time. What would be the consequences?

If both of you were only trying to read or report from the same file, there is no logical reason to deny either of you access to the data. However, if both of you were trying to change the same record at the same time, serious problems could result. Figure 1 shows what would happen if you and Ms. X over in accounting were to try and update the same record simultaneously. If you both asked to see the record before updating, you would each be given a copy of the data shown in (a). Suppose that you changed the data to that shown in (b) and saved it, and then Ms. X changed the data to (c) and saved it. The later changes would overwrite the earlier, and the company would ship out 10 units instead of100. The situation is the opposite of a race—whoever finishes first loses.

To prevent this type of occurrence, *dBASE* must prevent two people from having simultaneous edit access to one record. If Ms. X gets the record to edit first, then you must wait until she is done editing before you get to edit it. To be really picky about the issue, you shouldn't even get to examine the existing version of the record while Ms. X is editing it, because the record is really in an indeterminate state (it could be changed) while you might be fooled into thinking that the data in the record is accurate and current. For instance, while Ms. X is busy changing the price of widgets, you might be giving an erroneous quote to a customer based on the old price.

There are several mechanisms in place to control simultaneous access and updating, all controllable through your programs. The default usage of a *dBASE* database is EXCLUSIVE. When you, sitting at a workstation, issue the command USE ORDERS, the database will be allocated for your use and your use alone. If Ms. X tries to issue the same command from a different workstation, she will be denied access. This level of control is called **file locking.** All network users except the current user of the file are prohibited from even reading it while you have control, even people who try to access it from DOS instead of *dBASE*. When *dBASE* gives you control, it also makes an operating system call to MS-DOS 3.1 (or 3.2) which locks the file at the operating system level.

There is a problem with file locking, however. It would be very difficult to have four workers at different workstations adding orders to the same file, for instance. Each one would have to wait for the other updates to finish before getting access to the database. In this case, the workers aren't even trying to edit existing records.

There needs to be a way to allow multiple simultaneous access to a file, while still preserving safety from conflicting updates, and there is. It is called **record locking.** With record locking, no one else can change the record that you are editing, but people can change or add other records in the same file.

A program that is changing a record on a multi-user system typically needs to do several things:

1. SET EXCLUSIVE OFF and then USE **<database name>**. This opens the database for shared access.

2. Before editing a record, the program needs to call the RLOCK() function. This will lock the record if nobody else has it locked, and return a logical value of .T. if the lock was successful. Normally, you put the RLOCK() command into a loop that keeps trying until it can get a lock on the record. Putting a limit on the number of iterations in the loop is a good idea, with a "Please try again later" type of message to the user if the lock fails repeatedly.

3. When you're done editing and saving the record, release the lock by using the RLOCK() function again.

Those are the basic principles of using record locking. There are some operations that require that you get a file lock on a database, however. These operations are generally those that have a global scope; i.e., PACK, REINDEX, REPLACE ALL xxx WITH yyy, etc. For these, you can either use the FLOCK() function which works analogously to RLOCK(), or you can simply USE the file without the SET EXCLUSIVE OFF. □

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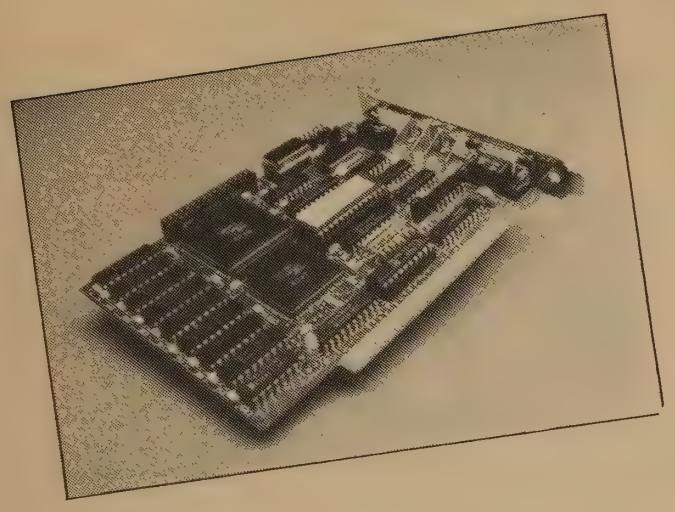

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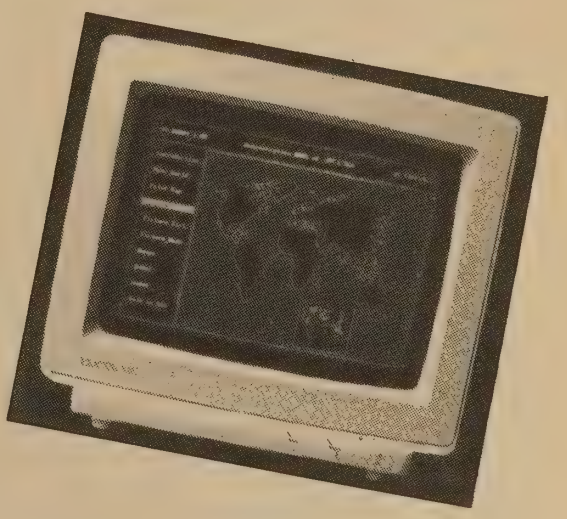

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Freedom Of Information Vs. National Security

The possibility that your every online keystroke could be monitored and reported to the NSA is not fantasy.

By Brock N. Meeks

At the very least, we've lost the the first major battle in the information access war. Let me assure you, 1984 is alive and well in 1987. Consider the following:

• In September 1984, the President signed the National Security Decision Directive (NSDD) 145, known as the "National Policy on Telecommunications and Automated Systems Security." The actual document is classified, but according to Ken Allen, senior vice president for governmental relations for the Information Industry Association (IIA), "An official expurgated version suggests the government wants to expand its control of information that it considers 'sensitive.'"

• October 29, 1986, former National Security Advisor Adm. John Poindexter quietly signed a directive giving NSDD 145 an all-encompassing security blanket for smothering information access. Poindexter's directive created a new security classification called "sensitive, but unclassified information." The definition of "sensitive, but unclassified information" covers information on "human, financial, industrial, agricultural, technological, and law enforcement" matters.

• On November 11, 1986, the quiet action of Poindexter and the preceding 1984 directive were unleashed on the general public by a Department of Defense official during an IIA-sponsored conference. Diane Fountaine, head of the Pentagon's information systems directorate, told the conference that the Administration was studying ways to censor public data bases—data bases that included only unclassified information. Further, she stated that the Administration was interested in finding ways of restricting access to certain public data bases by requiring proof of identity. She also noted that the government wanted to enlist the cooperation of the data base providers by having them monitor all online sessions and report any "suspicious behavior."

"I don't believe the issue is whether or not we're going to protect information," said Fountaine at the time. "The issue is what information are we going to protect, both within the federal government and within the industry." IIA president Paul Zurkowski says, "At that point, jaws were dropping all over the place."

Jerry J. Berman, chief legislative counsel for the American Civil Liberties Union (ACLU) said during the same meeting that if this expansion of information protection into new areas was not checked, "our free society is in serious trouble."

ONLINE GOLD MINE

Online data bases are a potential gold mine for foreign agents, and the administration wants to halt the "export" of technical information via computerized access—even if you can get the same information from your local library. When someone accesses a computer data base, nobody can tell whether that person is friend or foe, and that worries those charged with protecting our national security.

According to a source in the Commerce Department, this growing concern led the Reagan administration to compile a data base "hit list." The hit list consists primarily of data bases carrying technical information.

The concerns of the administration are "confirmed" by two documents: a 1985 white paper report issued by the Department of Defense (DoD), and a 1986 secret Air Force study written by an ad hoc committee under the direction of Colonel Mark Anway.

The September 1985 white paper report, "Soviet Acquisition of Militarily Significant Western Technology: An Update" reinforces the "mosaic theory" of information gathering—namely that distributed information, when compiled from several different sources, can create a single classified document. Page 17 of the report states that information, "taken in the aggregate, may reveal sensitive information concerning US strategic capabilities and vulnerabilities."

According to a spokesman for the Pentagon, the secret Air Force study identifies foreign data base access as a significant national defense concern. More specifically, the report identifies the threat of online access from Soviet Bloc countries. (At the present time, online access by Soviet Bloc countries violates no laws.)

The Administration's case for the mosaic theory is not without precedent. *The Progressive* magazine, in 1979, published its now-famous article on how to make a hydrogen bomb; all the information in the article came from publicly available sources. (Subsequently, the government clamped down on the presenting of scientific papers at technical meetings, papers that ultimately would end up in the public domain, and in an online data base.)

However, the government has overstepped its boundaries in issuing the "Poindexter Directive." Industry officials are concerned that access to information held on any online system, from CompuServe to The WELL, could be restricted in one way or another.

INFORMATION POWER PLAY

"We recognize that the government has a legitimate concern regarding national security," says IIA's Allen. "But we think it's dangerous for the government to censor or restrict the flow of information." Allen further notes that if the government succeeds in its quest to control unclassified information, "it will stifle one of the fastest growing sectors of the US economy. But the biggest losers are the citizens of the US, because they would be denied access to the information they need."

The Reagan administration, however, is already taking steps to deny foreign nationals access to high technology data. In 1986 the Pentagon ruled that visiting Soviet scientists should not be allowed access to supercomputers in this country. In a Washington *Post* article, Stephen Bryen, deputy undersecretary of defense for trade security policy, said, "The presumption is that [access to a] supercomputer is the same is as if you exported the supercomputer. Any computer that can't be exported, they shouldn't have access to."

Bryen later argued that foreign access to data bases is the same as exporting the power of that computer without an export license. "What you have to do is make access to data bases a licensable action," he told the *Post*.

The concern doesn't stop at the Soviet Bloc: American researchers and companies are denied subscription to certain technical documents. The sole criterion for this blacklisting is their interaction with foreign government nationals. This can best be demonstrated by examining the "no-no list" issued by NASA's Scientific and Technical Information Facility.

In a September 29, 1986 memo from the Technology Utilization Office, (TU), an official "no-no list" forbids distribution of *NASA Tech Briefs* and Technical Support Packages to several different companies because "the organizations cater to information requests from both the national and international arena." Among those listed are Dr. Michael Radner of Northwestern University (he is blacklisted for contacts to hi-tech Japanese firms) and Berkeley-based Information On Demand (because they distribute technical data worldwide).

BEYOND POLICY

Late last year major information providers (IP), such as Dialog and Mead Data Central, were paid visits by agents of the Central Intelligence Agency

continued on page 167

Brock Meeks is a San Diego-based freelance writer. He's keeping an eye on the keyboard and looking over his shoulder.

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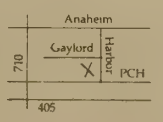

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Reviewed by: *Ari Davidow*

The last time I had a telecommunications program that I liked, it was using an ancient version of XMODEM on a CompuPro. When I bought my PC clone, I picked up a copy of *PC-Talk*. I liked it, but whenever I tried running it in 8-bit mode, I exchanged ASCII for Greek (aka the extended MS-DOS character set). A friend loaned me an old copy of *CrossTalk*, which was easy enough to use, but didn't support XMODEM. Next I bought a copy of Mite, but compared to *CrossTalk*, *Mite* is a real pain. So I bought the the new *CrossTalk* clone, *Mirror*. *Mirror* had bugs of its own, and left me distinctly uneasy, so I bought a current copy of *CrossTalk*. Yuk. Lots of errors. Truth is, *CrossTalk* doesn't *want* to support anything but its own protocol. So a year after I bought my PC, I'm limping along using *CrossTalk* when I want to discuss something on a bulletin board and *Mite* when I want to upload or download files.

Enter my friend Dick. Now Dick is the kind of person who has to do everything Bigger, Newer, and Faster. He always has some new program that can do something no one should really ever want to do, and do it faster or bigger than the last version of the same program. So when he showed up with a telecommunications program called *ProComm*, I was, to put it mildly, dubious. And, true to Dick's taste, it makes some impressive zips as it comes up on the screen, and lets you change the screen colors all over the place.

However, as I found out when I took it home, it's a very useful program. It works similarly to *PC-Talk*, with simple mnemonic codes to access the dialing directory (which is also quite easy to set up). It can transmit and receive data using XMODEM, YMODEM, Kermit and several other protocols. One, called Telelink, is the fastest and most accurate protocol I've ever seen. *ProComm* can transmit or receive many files at once, and the program figures out just about everything for me. When I want to download a bunch of files, I press the PgDn key and tell *ProComm* what protocol to use. (Uploading files, logically enough, is PgUp.) *ProComm* then figures out the file names, whether or not to use CRC error checking, how long the file is, and what that means in terms of real time. Nirvana.

ProComm supports a vast array of terminal emulations. It has an easy-to-use "log" function, and includes an online help screen that lists all the commands whenever you need them. You can create macros to automate logging onto bulletin boards or online services. You can skip out for a second and use DOS commands. You can edit files and then send them. You can do just about everything that the expensive programs promise, only in the case of *ProComm*, everything works.

Best of all, *ProComm* is shareware. Copies are available on bulletin boards and at PC user groups everywhere. And don't forget to send in your registration fee—anybody who creates a program this good deserves to get paid for it.

There is, alas, one other cost associated with *ProComm*. Now that I have a comfortable, working telecommunications program, my bill on The WELL and BIX is reaching unaffordable proportions. Sigh. At least I can keep track of it with *ProComm's* time log. (Datastorm Technologies, P.O. Box 1471, Columbia, MO 65205, 314/449-7012.)

HARDWARE & PERIPHERALS

ITT XTRA/286 ATW Computer

By: *ITT Information Systems*
Price: *Model I-$2,499 (640 K RAM, 1.2 BM floppy disk drive, multi-mode graphics capabilities); Model II-$4,299 (640 K RAM, 1.2 MB floppy disk drive, multi-mode graphics capabilities, 30 MB hard disk drive)*
Reviewed by: *Patricia Lesser*

As dyed-in-the-wool clone-XT users, we doubted whether any computer system could change our work habits or system preference. We had become used to a clock speed of around 4 MHz for our computer, and had acclimated ourselves to the somewhat sluggish, but still acceptable, manner in which most programs operated within its environs.

We can now blame the ITT XTRA 286/ATW (Advanced Technology Workstation) for callously and permanently ruining our loyalty for the XT and its varietals. And, due to the XTRA's superb performance, we can see no reason for ever needing a 80386-based machine. This computer has met all of our system needs. We can also state, categorically, that the 286 ATW should meet any user's requirements, whether in a single- or multi-user environment.

First, let's get the basics out of the way. The XTRA/286 ATW is an impressively sized and handsome machine. Granted, the box is rather large, but the smoothly rounded corners of the sand and cream colored base unit blend with almost any office decor. There's a lock at the front of the base unit that not only secures the computer's internals from being manipulated without authorization, but also locks the keyboard from curious fingers if you happen to be away from an activated machine for a few mintues. When locked, data entry from the keyboard is prohibited.

The unit is "stock" with a multi-mode Enhanced Graphics Adapter (EGA). A nice feature about ITT's EGA is the fact that the board is compatible with all of the major graphics modes. This is accomplished via four DIP switches located on the board, which can be accessed by the user after installation. With the use of a small, flat blade screwdriver, the adapter's settings can be re-set through the system unit's back panel for the like of CGA, MDA, EGA and Hercules emulation. The switches can also be set so that you can run both a primary and secondary adapter.

The 286 ATW also has, as standard, one serial and one parallel port and eight expansion slots. Two of these slots are 8-bit, providing for PC board compatibility, and the other six are 16-bit slots, for AT board compatibility. Three of these eight slots are half-height slots. The number of slots is admirable, especially as other clones don't offer this many. We required all of the slots, as we had to add an asynchronous card, a Datacopy scanner interface card, an additional parallel port, a mouse interface card and a 1200 baud internal modem. And, should you be as heavily involved in desktop publishing as we are, attachments to two different printers (i.e., a dot matrix and a laser printer), scanners and an I/O device become permanent attachments to your unit.

The computer's keyboard is a true delight to use. The firm response and lack of sponginess of each key when pressed is a definite plus. The audio as well as tactile feedback is excellent without being the least bit annoying. The 286 ATW's function keys are located on the left side of the keyboard in their familiar position, not balanced on top of the numeric keys as in some clone machines.

The 30 MB hard disk drive is an editor's answer to the question of "how to manage all of those files...." For example, the software we currently run on a continual basis for *PC Publishing* includes the following programs: *Diagraph*, *DRI GEM*, *ForComment*, *Harvard Professional Publisher*, *Microsoft Windows*, *Microsoft Word*, *OfficeWriter 5.0*, *PC Paintbrush Plus*, *RapidFile*, *Ventura Publisher*, and *Word Finder*. There goes 15 MB of disk storage. We also have a variety of subdirectories established for differing purposes, such as clip art storage, telecommunication with associate and contributing editors, files for differing issues, databases of vendor, subscriber, and other contacts. That wipes out another 8 MB of data. With a 20 MB drive, you're looking at a storage capability that is very nearly exhausted. Should one then need image scanning and/or optical character recognition, the remaining 2 MB or so is totally inadequate to address the additional storage needs. Some scanned files can require as much as 1½ MB each of storage.

But no such problem exists with the ITT XTRA/286 ATW—we do have the Datacopy JetReader attached and, even with the aforementioned storage occupied, still have ample room for manipulating several .IMG or .PCX files. There's even remaining storage space available for new programs that require editorial examination without deleting other important subdirectories from the disk. Access is exceedingly fast, averaging a blazing 40 milliseconds.

When the 2286 ATW is powered up, the unit goes immediately into a rapid self test that examines each of the devices located on the system's motherboard. More than 20 tests are administered, examining the port registers, the real-time clock, video boards and the floppy disk controller. Any errors are either displayed on the monitor screen or via a series of beeps. There is also ROM-based diagnostic software that allows you to check your system board, memory, the floppy disk drive(s), the keyboard, video display, and the hard disk drive. This is almost akin to having an entire technical service department at your disposal whenever you need to "check out" your computer.

There is also an asynchronous communications program included with the 286 ATW's software, which sends and receives files, emulates a terminal, provides easy access to communication parameters, supports XMODEM for error-free transfers, and allows for the storage and retrieval of communication parameter sets as well as sending data to the printer. Additionally, the system comes complete with MS-DOS 3.1, Revision C, by Microsoft, and the GWBASIC programming language.

In conclusion, we feel that the ITT EXTRA/286 ATW provides an excellent environment for productivity. The unit's design, quiet operation, expandability, sortage capabilities, bundled hardware and software, and speed of operation make this computer a delight to own and operate. ITT is to be highly commended for the introduction of this machine into the MS-DOS environment.

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EDUCATIONAL SOFTWARE

SCIENCE TOOLKIT: Master Module

By: *Scott Shumway and Lauren Elliot*
Published By: *Brøderbund (1985)*
For: *Apple II series (64K)*
List Price: *$70 (special school edition $90)*
Reviewed by: *Mike Markowitz*

An amazing amount of high technology can be crammed into small, cheap packages if you are going to make *a lot* of them. Especially in Taiwan. Science Toolkit is a case in point.

The *Science Toolkit Master Module* is a black box the size and weight of a cigarette pack. It plugs into the Apple's game port with a male DB-9 connector on a 32-inch cable. It has four inputs: two for analog signals and two for digital signals. (All are standard RCA-type phono jacks.)

To provide the analog input you get two wonderfully simple scientific instruments with no moving parts. The "temperature probe" is a thermistor — a device that varies its electrical resistance in response to temperature changes. The "light probe" is a cadmium sulfide photocell (similar to a photographer's light meter). The temperature probe is accurate to a tenth of a degree Fahrenheit (the Celsius scale is also always displayed). The light probe measures intensities ranging from zero to 500 footcandles (no metric equivalent is displayed however).

The accompanying software provides colorful graphic displays for the output of these instruments. It can also use the computer's internal crystal oscillator to provide a stopwatch or "timer" accurate to .01 second. You can start and stop the timer from the keyboard, or you can use the input from one of the probes to trigger it.

The *Science Toolkit* software includes a "strip chart recorder" that can sample and print out up to 4000 measurements ("data points") over periods ranging from 5 minutes to 24 hours. The program will work with just about any Apple compatible printer — no graphics capability is required. A second disk drive can be used to save data, and there is a full set of disk utilities you can access within the program to format a disk and load, save, delete, or catalog your experimental data.

The look and feel of the software is based on the metaphor of a lab notebook. The menu screens are set up like pages, with checkmarks indicating the selected options. Everything is done from the keyboard, since the joystick/mouse port is already occupied.

What can a science teacher, or a future Nobel Prize winner, do with all these resources? A 128-page illustrated manual, spiral bound to lie flat, provides 27 beginning experiments that employ common objects and household materials to demonstrate some important laws of physics. Don't expect to measure the speed of light, or the charge on an electron — these are experiments for the elementary or junior high school level. The timer is used to replicate Galileo's famous experiment with falling objects. There are also some experiments in plant growth that investigate the effects of heat and light, and some kitchen chemistry.

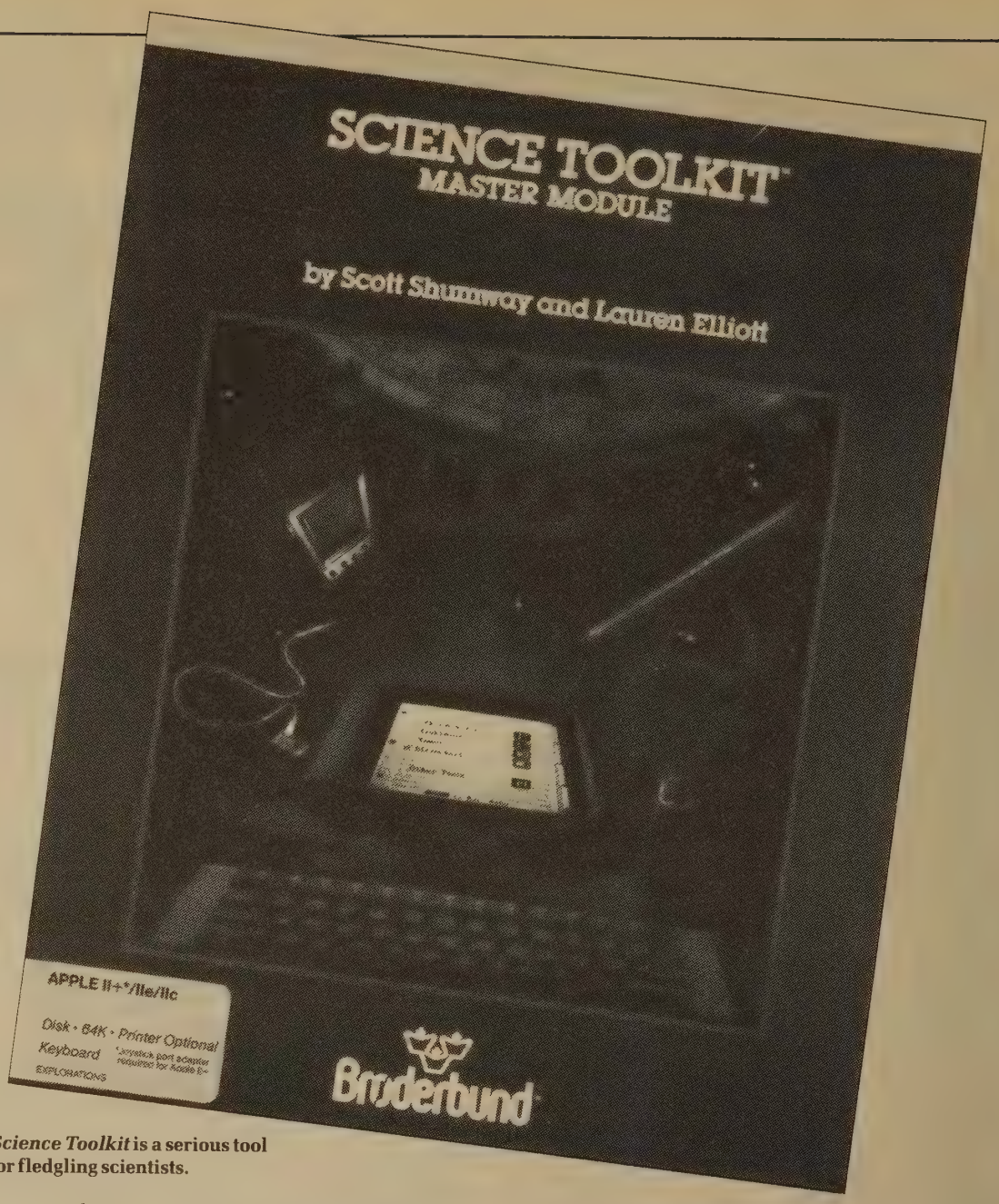
Brøderbund's usual standards of meticulous documentation are marred only slightly by the light gray ink, too-small typeface and crowded page layout. Most teachers would prefer a less stylish, more legible book.

The documentation emphasizes safety, as befits any product intended for young people. The software triggers an audio alarm and pops up a dialog box if the temperature probe reads higher than 140 degrees F. Other dialog boxes caution the user when there is any risk of losing data. *Science Toolkit* formats data disks using a fast custom DOS that does not look like DOS 3.3 or ProDOS to other utility programs.

The package was completely compatible with the Laser 128 and the Franklin Ace 1000. To use the interface box with an early Franklin or an Apple II Plus, an inexpensive adapter ($5.95 by mail order) is needed to connect the 16-pin motherboard socket to a 9-pin connector. The Apple IIGS will need a new version of the hardware, since it does not use the same kind of joystick port as earlier Apple II's.

Science Toolkit is being well supported by Brøderbund. There are already two expansion modules. Module 1, *Speed and Motion*, includes an additional photocell, an analog speedometer, a digital tachometer and a balloon-powered toy car. Module 2, *Earthquake Lab*, provides parts to build a seismograph using the photocell from the Master module. A third module on the human body will deal with things like heart rate and reaction time.

Science Toolkit could be a new lease on life for thousands of obsolescent Apples and compatibles that have only limited future prospects. Rather than being consigned to the junkheap or the closet, they can be reborn as lab equipment. Schools and research institutions can do this for a fraction of the cost of new lab equipment. The low cost and pretty graphics might give an erroneous impression that this is merely a science toy. It is not. It is serious scientific instrumentation. Like any good instrument, it can even be calibrated against a standard if one is available. The calibrated correction factors can be retained by the software. Brøderbund should be encouraged to publish detailed technical specs for the interface so that third-party vendors can get into the act with compatible devices. (Brøderbund, 17 Paul Drive, San Rafael, CA 94903-2101.)



***Science Toolkit* is a serious tool for fledgling scientists.**

Keyboard Cadet

Published by: *Mindscape*
For: *Amiga*
Suggested Retail: *$39.95*
Reviewed by: *Nathan Barber*

Keyboard Cadet makes learning the fundamentals of touch typing fun by using arcade-like techniques. It requires an Amiga with 256K of memory and one drive. The manual states that the program will work with Kickstart 1.1 or higher, although it does not work quite right under Kickstart 1.2 Gamma 1. The disk is copy protected; this is a serious drawback, since the high score file is saved to the same disk.

Keyboard Cadet's manual explains the basics of correct typing style: posture, home row placement, and looking at the screen rather than at the keyboard. Should you be interested in learning the Dvorak keyboard, the manual supports this layout along with the standard QWERTY. The rest of the manual is dedicated to explaining all the clickable gadgets the program utilizes.

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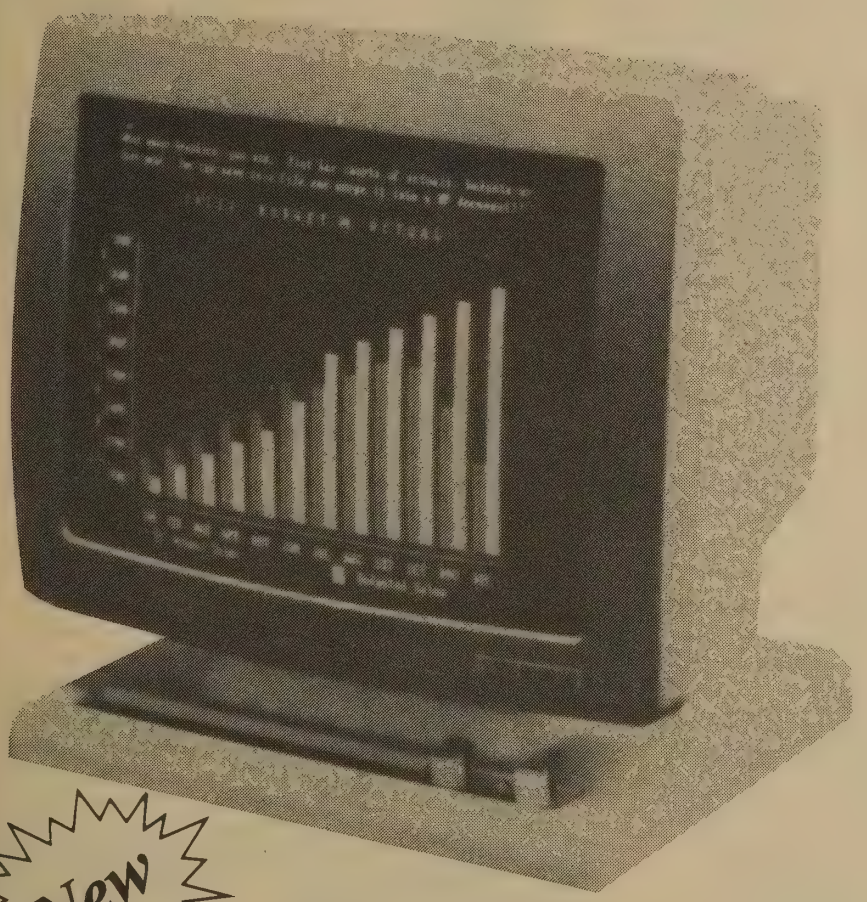

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The program proceeds, by steps, through fifteen different lessons ranging from the home row keys to timed typing tests. The program makes this interesting by displaying the letter to be typed on a grid that resembles a gunsight. The object of the game is to hit the right letter on the keyboard before it can hit your spaceship. The lessons each end with the user typing words made up of the letters just learned in the previous lesson. This is good reinforcement and provides some quick practical experience.

Keyboard Cadet has three skill options: Fast, Superfast, and Hyperfast. Fast mode is just fast enough to force the beginner to look at the screen rather than at his fingers. As an aid, a picture of the keyboard, either QWERTY or Dvorak, is kept on the screen at all times. Letters typed correctly are shown in yellow and those that are mistyped are shown in red. Hyperfast mode is for the real speed demon who has nothing better to do than show off his typing prowess. The program saves the user's standings to disk, which makes it easy to keep track of which lessons have been completed and which still need to be done.

Keyboard Cadet has several features that work as both tension breakers and typing helpers. Once per lesson, a large mothership pops up and whines out a laser sound. This is your signal to hit all the keys on the home row as fast as you can. It helps stress the importance of correct finger placement and also gives you a slight rest from typing words like "quagmire" that send your poor fingers scurrying all over the keyboard. The timed typing modes let you choose between "typewriter" and "word processing" mode. In typewriter mode you must remember to hit the return key at the end of a line, and you cannot make corrections to your words. Word processing mode allows word wrap and mistake correction (with loss of time, of course).

I find that *Keyboard Cadet* serves its purpose well. A couple of years ago I typed at 140 words per minute. I got a little sloppy and began to move off the home keys during some of my long stints at the computer keyboard. This developed into a bad habit and brought my time down to about 100 WPM. *Keyboard Cadet* really helped take up the slack by making me "relearn" the correct ways I had let slip, and my speed is now back up to a respectable 120 WPM.

I would have liked a couple of additional features. One is a lesson or two on using the Amiga's numeric keypad. Another is a lesson focusing on the special keys that surround the computer keyboard like Control, Alt, Tab, and the open and closed Amiga keys. Normally these keys are not used much, but being able to hit them quickly in a touch typing environment is a sure way to speed up productivity.

Keyboard Cadet teaches typing without the excesses of sound and graphics found in some other programs. One other Amiga typing program makes a large explosion on the screen whenever you hit the right letter, which I personally think is a bit much. *Keyboard Cadet* will get the job done and do it in an entertaining fashion so that the user will not fall prey to the boring drills found in other non-computerized typing classes.
(Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 800/221-9884.)

GRAPHICS

Blazing Paddles

Published by: *Baudville*
For: *Commodore 64, Apple II*
Price: *$34.95*
Reviewed by: *Dennis Nygard*

One of the prime reasons for the invention of computers was to make tasks faster and easier. When it comes to creating graphic displays, *Blazing Paddles Illustrator* does just that. Pictures, diagrams, and text are quick and easy.

Blazing Paddles makes use of an icon menu and supports several input devices including joystick, touch tablet, trackball, paddles, and light pen. A trackball and light pen were not available for testing; all other devices worked quite well. *Blazing Paddles*' features include the standard graphics functions of drawing lines, boxes, and circles as well as a freehand sketch mode. However, some rather nice additions include the filled box and filled circle, and the ability to load shapes from shape files. There is also a spray feature, an electronic equivalent of the airbrush.

Colors can be handled in two different ways. The first is called "bit optimization" and allows the use of any of 16 colors or the mixing of any two colors. The second mode is referred to as "register selection" and is addressed in the back of the instruction booklet under "advanced color techniques." This includes a short description of how the color memory of the computer works and a very brief explanation of how and when to use this mode.

Other supported features included disk handling and the ability to send your masterpiece to print. Also included is a window option that allows you to cut out a part of your drawing and paste it somewhere else on the screen, or in several places like a stamp. A useful option is the ability to cut out a window and save it to disk for use later or in another illustration.

Initial startup is achieved by loading and running the first program on the disk. Loading time is approximately two and a half minutes. Once the program's loaded, you are given a menu choice of the input device you wish to use. Once you've made that selection, there is another load of approximately 30 seconds.

Blazing Paddles proved to be very easy to use; the 28 page instruction booklet covered all of the basic actions for each item shown on the menu. There is also an error correction function called the undo feature built in. This allows you to discard the last action performed, whether it was a line or filled-in color. Undo will, however, only work to erase the last action.

The literature which accompanied the software included a listing of shape tables disks which could be purchased in addition to the ones included on the program disk. However, I could find no way of producing your own shapes. The nearest equivalent is to draw the shape, use the window to cut it out and then save the window.

Blazing Paddles covers a wide range of applications and uses. The icon menu is easy enough for pre-school children to work with, while at the same time it has enough features to provide for the artistic or technical sketch. If you are interested in using your computer to do graphic work, then check out *Blazing Paddles*. I think it's well worth the price. (Baudville,1001 Medical Park Drive SE, Grand Rapids, MI 49506.)

Certificate Maker

Published by: *Springboard Software (1986)*
For: *Apple II series (64K), IBM PC*
List Price: *$49.95*
Reviewed by: *Mike Markowitz*

As an amateur calligrapher, I am often asked to inscribe certificates of various kinds. Diplomas, awards and invitations are almost the last surviving refuge of fine hand lettering. A skill that was once required of every literate person gradually declined into a craft tradition, and then became a rather eccentric hobby.

The demand for personalized certificates is huge. Schools, corporations, clubs, charities and churches all need to hand out bits of paper that reward or recognize achievement. We live and die by those bits of paper.

Any organization that spends more than forty dollars a year on such bits of paper should consider *Certificate Maker*. A version for the IBM PC has also been released, and versions for the Commodore 64 and 128 are planned. Basically, it consists of 220 different "templates" for certificates that the user can fill in and print out on a dot-matrix printer. The look and feel of the program is very similar to *Newsroom* from the same publisher, but *Certificate Maker* is much easier to use, since there are fewer choices.

You select a template by number from an illustrated catalog in the back of the manual. You choose one of 24 ornamental borders. The title and

Certificate Maker is an easy-to-use package for creating certificates recognizing a variety of achievements and events.

body text can be printed in any of five type fonts, and there may also be a choice of sizes. You complete the layout with a date and signature line.

The user manual is a thick booklet that clearly explains every step in designing and printing a certificate. Most users will only need to refer to the manual to pick a template. You cannot see what your finished certificate will look like until you print it out, but the illustrations provide a rough idea. It takes quite a few minutes to print out a certificate if it contains a large graphic element. The program pauses several times to read fresh information from the disk. Although most user errors are trapped neatly, I found that the program will crash if you remove a disk from the drive in the middle of a print run.

If many similar certificates must be printed in one run, you can create a "*name* file" on a separate disk. The program then executes a "mail merge," inserting each name on an individual printout.

The main program takes up one side of a disk. The graphics files take up three more sides, so some disk swapping may be necessary on a single-drive system. A wide variety of printers are supported including those made by Apple, C. Itoh, Citizen, Epson and Okidata. Fifty-four different printer interface cards are also covered in the setup. Unfortunately, there is no support for the LaserWriter or any color printer.

Most of the templates have cartoon-style graphics, often quite humorous, but nicely detailed. The

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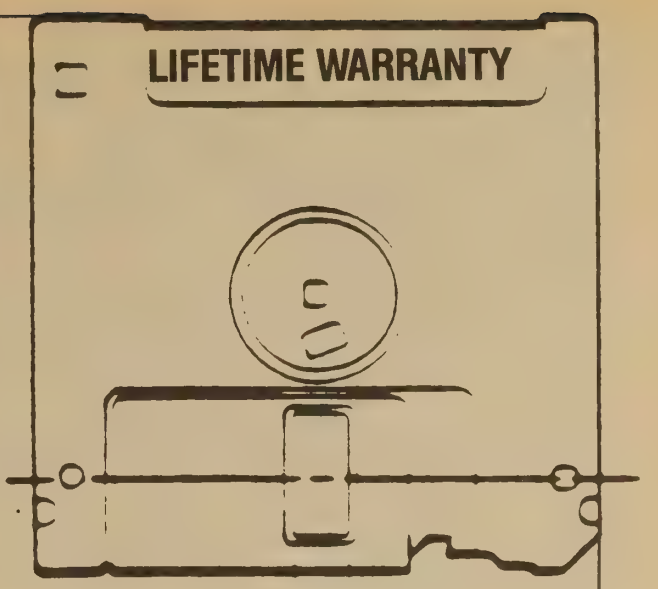

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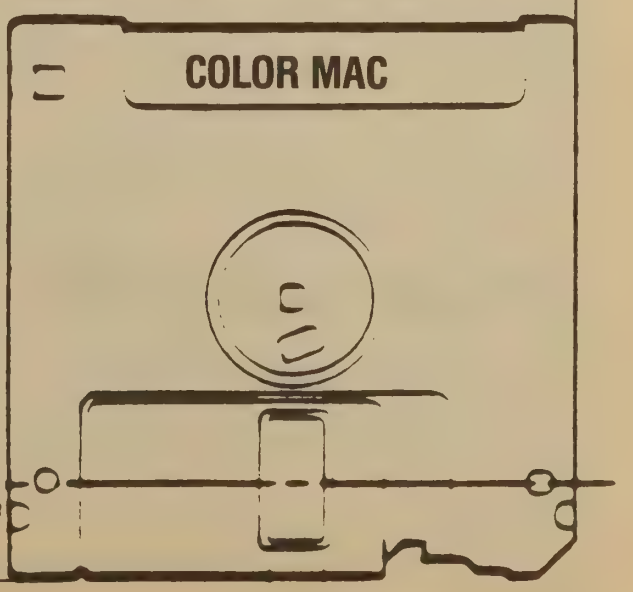


topics include joke awards, like "Couch Potato," "Party Animal" and "Certified Idiot," along with academic awards for school subjects, sports awards, sentimental "family" awards, religious symbols, general purpose awards, and blanks.

The sports include basketball, football, baseball, gymnastics, hockey, tennis, track and field, golf, soccer, bowling, racquetball and swimming. Nothing for wrestlers, cyclists or rugby players. Rugby players don't need awards.

Most subjects have both male and female illustrations. The religious symbols include Islamic, Buddhist, Hindu, Shinto and other non-Western motifs.

Many people feel that dot-matrix output looks "tacky." The "licenses" and "Diplomas" produced by *Certificate Maker* are certainly unlikely to be used for any fraudulent purpose. On good-quality paper with a new printer ribbon, the output from this program is perfectly acceptable for informal awards, or humorous items. I would recommend it for any elementary school with an Apple and a printer. The package includes 36 assorted adhesive stickers that can be used to decorate your creations. The gold ones are particularly impressive. Any card shop in any shopping mall carries a large variety of stickers that could be used for the same purpose.

Springboard has always been a hard-liner on copy protection. The documentation for *Certificate Maker* includes a nasty threat: "WARNING: . . . Attempting to copy these disks could damage them . . ." This appears to be an idle threat. *Copy II Plus* (version 7.1) has parameters for bit-copying the program, and I was able to make a backup copy for archival purposes (after taking the usual precaution of write-protecting the original).

Certificate Maker cannot share graphics with other applications, like *Newsroom*. The user cannot modify the graphics provided, or create new graphics that the program can use. It is, therefore, less flexible, and far less "creative" than *Print Shop*, or many other graphics programs. It is likely that Springboard will eventually release an enhancement disk to provide some additional capabilites. *Certificate Maker* will be a successful product by itself, however, because it is smooth, quick and fun. (Springboard Software, 7808 Creekridge Circle, Minneapolis, MN 55435, (612) 944-3915.)

Award Maker Plus

By: *Gregory C. Miller*
Published by: *Baudville (1986)*
For: *Apple II series (64K)*
List Price: *$40.00*
Reviewed by: *Mike Markowitz*

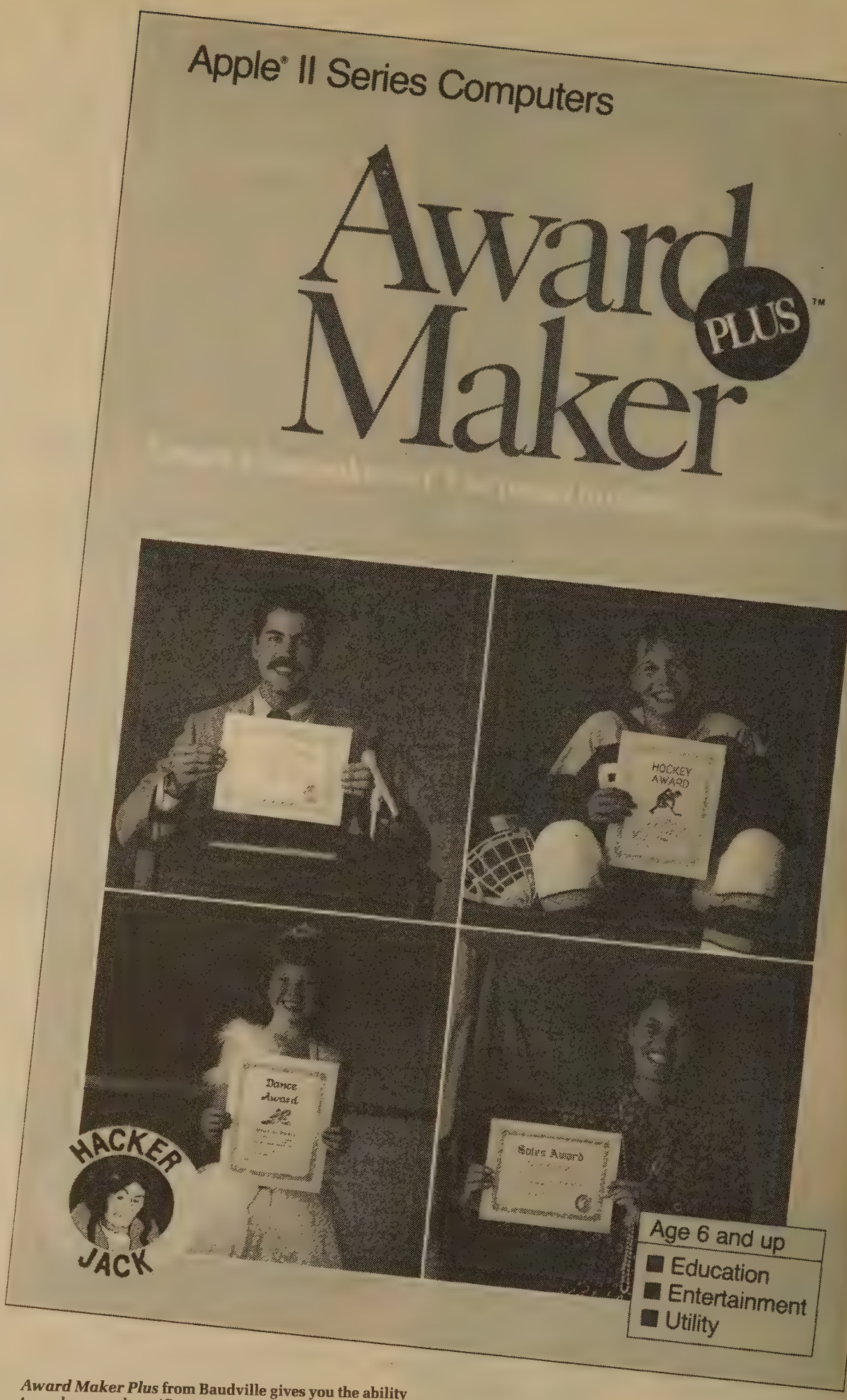
Baudville has always produced great graphics software for the Apple II series, and its latest release, *Award Maker Plus* is no exception. The program uses almost any dot-matrix printer to create official-looking awards and certificates for almost any purpose. The primary market for the product is likely to be schools, and the program is sure to invite comparison with the very similar *Certificate Maker* published by Springboard. It should be emphasized, however, that the "look and feel" of the two programs is quite different. *Award Maker* is not a clone or a rip-off.

For one thing, *Award Maker* supports color printers, such as the Imagewriter II or Epson JX. The border around your text can be printed in a contrasting color; and what borders they are! There are ten different styles, and some of the borders look like they came from bank notes or stock certificates. In addition, any Print Shop graphic can be used as a border, if it is first copied to a ProDOS-formatted data disk.

Award Maker includes 286 different "styles" or templates. Some are completely blank, most include 4 to 6 lines for the recipent's name and any text you want to add. Several styles allow you to insert your own graphic, using any standard high-res Binary file on a ProDOS data disk. The program takes up one side of the disk, but the various templates take up three more sides, so a certain amount of disk swapping is usually unavoidable, especially on a one-drive system. There are four text fonts: Old English, Script Italic, Book Serif and Modern. Within the limits of dot-matrix resolution, they all look pretty and clean.

The award categories include academic, family, sports (male-oriented), humorous, office, and general. My favorite award in the humor category was the "Citation for Parking like a Beached Whale."

The program is menu-driven, and virtually idiot-proof. Installation is a snap — just specify your printer and interface from the very extensive



***Award Maker Plus* from Baudville gives you the ability to make award certificates in color.**

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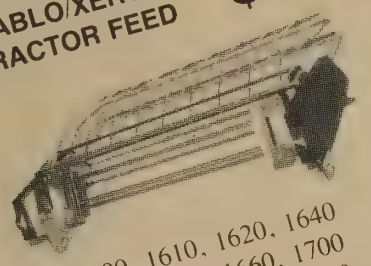

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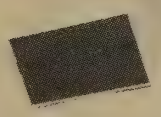

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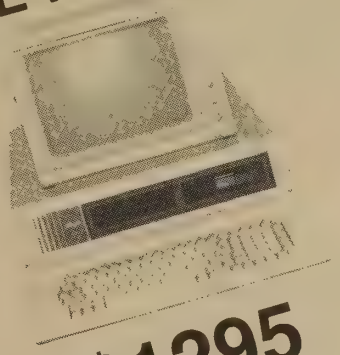

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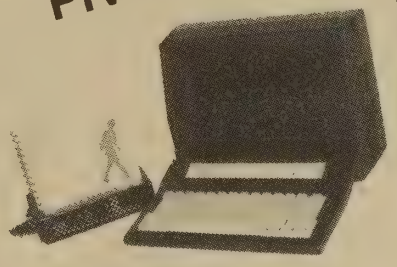

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lists provided. Although *Award Maker* is copy-protected, a hard disk version and a version on one 3.5" Unidisk are available (at extra cost) from the publisher.

Documentation includes an 8-page fold-out leaflet of instructions and a small booklet illustrating the different award styles. A strip of 20 identical embossed gold stickers is provided (they all say "The Official Seal" and carry an English-looking coat of arms). The package also includes an order blank for some very fine pin-feed parchment-like paper at $12.95 for 100 sheets. Even the most ornately printed award still looks tacky, after all, on plain old bond paper.

Deciding between *Certificate Maker* and *Award Maker* is a tough choice. Users with a color printer and the desire to use custom graphics in their awards will certainly prefer *Award Maker*. (Baudville, 1001 Medical Park Drive, SE, Grand Rapids, MI 49506.)

THE PRINT SHOP GRAPHICS LIBRARY: HOLIDAY EDITION

Published By: *Brøderbund (1986)*
For: *Apple II series and Commodore 64*
Requires: Print Shop *and any dot-matrix printer with graphics capability*
List Price: *$24.95*

Reviewed by: *Mike Markowitz*

This is the fifth *Print Shop* product from Brøderbund. There is also a wide variety of third-party enhancements and additional graphics disks. *Print Shop* is software of enduring quality, and it is good to see it receiving continued support from its maker.

The *Holiday Edition* covers all the popular American holidays (Cinco de Mayo too, but our Canadian friends are out of luck). This is not just a seasonal software promotion, but rather a product that can be used through the whole cycle of the year. There are ten fonts, 14 borders, 70 graphics and twelve full-screen panels taking up both sides of a disk. Many of the designs were submitted by users like us.

The fonts are more decorative than legible. The Flag font is suitable for July 4th inscriptions. The "creepy," "bones," and "shock" fonts are meant for Halloween. A font of letters built from logs must be intended for Lincoln's Birthday, or National Lumber Week. The candy cane and wreath letters are pegged for Christmas, of course.

The borders look pretty amateurish, being mostly very tiny repeated graphics, like skulls, pumpkins, bells, acorns and holly sprigs.

The graphics include some fine work. The heads of Washington, Lincoln and Martin Luther King, Jr. are quite realistic. There are a lot of cute and sentimental Christmas themes, an adorable groundhog peeking out of a hole, some dragons for Chinese New Year, and a Menorah with nine candles burning.

The twelve full-screen, full-color panels are mainly for owners of color printers or users of the *Print Shop Companion* (who can "capture" portions for inclusion in their signs and greeting cards). There is an Easter Bunny in a tie and a striped jacket, a teddy bear, a maypole, Miss Liberty, a witch, a mummy, a fine, almost photographic rendering of the four heads of Mt. Rushmore, a Pilgrim family at dinner, the Three Kings on their camels, a Hanukkah candle lighting scene and more.

The Holiday Edition would be particularly useful for schools and other institutions that need to adorn their printed matter with seasonal decorations. Some of the graphics would be particularly appropriate for the monthly calendars that can be printed with *Print Shop Companion*.

The disk is packaged with a slim booklet that reproduces all the fonts, borders and graphics for easy reference. Although the price of the package seems a bit high, intensive users of *Print Shop* should find much to enjoy here, especially if they are getting bored with the original graphics. (Brøderbund, 17 Paul Drive, San Rafael 94903, (415) 479-1700.)

GAMES

Tass Times In Tonetown

By: *Interplay Productions*
Published by: *Activision (1986)*
For: *Apple II (64K) versions for all other personal computers also available*
List Price: *$30.00*
Reviewed by: *Mike Markowitz*

Gramps, your favorite old guy, has vanished into an alternate reality. Or another dimension. Or something. Anyhow, you have to figure out how to get into his laboratory, activate a Strange Device and follow wherever he's gone to rescue him.

You can count on the talking dog to help you out. You're being pursued by a highly intelligent, implacable man-eating reptile.

Tass Times In Tonetown is a really imaginative interactive adventure game from Activision. It has the feel and texture of an hallucinatory dream. You are thrust into a world full of people you can talk to, but you don't know the rules. You have to figure out where to go, what to wear, how to communicate and what to do with the bizarre objects you find.

Although it works fine with a joystick or the keyboard, *Tass Times* has a very smooth mouse interface. Alongside the graphics and text that describe your current situation, there is a block of icons for the basic adventure game actions: move (up, down, north, south, east west), talk, get, buy, drop, tell me about, hit, enter, and look at.

You click on the icon to perform the action. Depending on the situation, you may also need to click on the object of the action, or type its name on the keyboard. The adventure is refreshingly free of mindless violence, unless you consider being eaten by an intelligent reptile to be violent.

Tonetown, the alternate reality where the adventure takes place, is a kind of futuristic youth culture. Music, hair styles and clothes are very important. Guitar picks are used as money. Tourists are scorned.

A slim booklet explains the bare mechanics of the program, but your best source of information is a copy of the *Tonetown Times* included in the package. A careful reading should provide you with a lot of hints and tips.

Tass Times In Tonetown is a little weird, but it is different from the general run of interactive adventure games, which have, by now, pretty much beaten the swords-and-sorcery theme to death. The people at Interplay productions who designed it get my nomination for the creativity award. (Activision, PO Box 7287, Mtn. View, CA 94039 (415) 940-6044.)

Commando

Published by: *Data East USA Inc.*
For: *Commodore 64*
Price: *$29.95*
Reviewed by: *Kirk H. Lesser*

The perspiration runs into my eyes as I throw the grenade. I rub the stinging salt from my eyes and see the explosive effects of my perfectly-thrown grenade. I can't stand still for long, though. Too long of a pause and I'll end up looking like those hostiles who got the shrapnel from my grenade.

Stop it! Got to get any thought of personal injury out of my brain before it clouds up my instinctive reactions to the enemy. I begin laying down machine gun fire in front of me and watch as three of the enemy dance, then fall to the ground. Then a dreadful thing happens, more painful and torturous than death itself—my phone rings! So much for this battle.

Commando was a great game in the arcades. Unfortunately, Data East was unable to manage the same for the microcomputer version.

Your object is to be a bloodthirsty Rambo-type character, destroying the enemy with your machine-gun and grenades; to go through the enemy's Iron Walls, and then destroy their base. As soon as you reach an Iron Wall, the ruthless mongrels will seem to be coming out of the woodwork as they continue their relentless pursuit, trying to destroy you before you can get through the Iron Wall.

The game, after booting, starts with a title screen accompanied by the official music from *Commando*. Pressing the fire button will start the game. You are the little blue guy at the bottom of the screen, and the enemy is any figure in the other colors, such as grey, green, and orange. Moving your joystick will move your fighter accordingly. The fire button fires the machine gun in the direction your warrior is facing. Pressing the space bar will throw a grenade.

You have to face many obstacles during the game, which is certainly no picnic. The obstacles are mortars, machine gun nests, trenches, water, and of course, the enemy with grenades and bullets. There are also trucks, cars, and motorcycles that attempt to run you down. You must also rescue allies who have been captured by the enemy, which earns you bonus points. After destroying the enemy's base, you start over from the beginning at an allegedly higher level of difficulty, which I honestly didn't find any harder than the level I had already completed.

Your progress in this gory endeavor is somewhat limited by inconsistencies and anomalies in the program. For instance, the documentation states that when you get to the enemy base and kill every last breathing, moving, person that comes out at you, you then destroy the building. But after passing through two iron walls and upon reaching the base (which looks like a two story family dwelling), I somehow managed to go through the enemy base without any sort of an explosion. I also received this message,"Congratulations on completing your mission!" and the game started from the beginning again!

There were other errors that I noted during the program, too. When there are four or more of the enemy, they begin to flicker; occasionally bullets and grenades will go through them without any detrimental effect. I think the problem here revolves around the number of sprites the C64 can handle at one time; the game may try to manipulate too many sprites at one time. The enemy also has some men that seem to specialize in grenades, because those explosive pineapples seem to rain down upon you continuously. I also noted that if you cause your man to leave the screen momentarily, the upper half of his body is missing when you bring him back. Instead of throwing grenades, he'll throw the upper half of his body—an extremely strange sight.

I enjoyed *Commando* for a little while, but then became quite bored. Perhaps a dyed-in-the-wool arcade game enthusiast would enjoy this program more than I did, but after a while, play becomes "old." It seems to me that Data East could have put in a little more effort into *Commando*. (Data East USA Inc., 470 Needles Drive, San Jose, CA 95112.)

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AST Research

AST's desktop publishing system, the Premium Publisher, uses the Premium/ 286 as the IBM AT-compatible CPU. Combined with AST's TurboLaser printer and TurboScan optical page scanner the workstation is a powerful document handling system that includes scanning, printing, computing and text and graphics display capabilities. Typical applications include layout and design of newsletters, brochures, ads, price lists, proposals, financial reports, manuals and forms.

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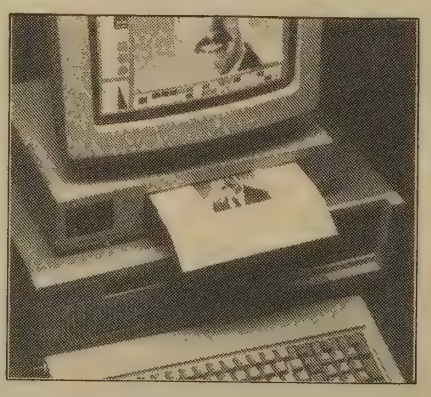

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Printware will be exhibiting the 720IQ Laser Imager, a high-resolution plain paper laser printer. The desktop printer images 1200 x 600 dots per inch at 8 pages per minute. Duty cycle is rated at 20,000 pages per month, making the 720IQ a production workhorse for single or multiple user configurations. Other features of the printer include a straight paper path and the ability to print in color (red, blue or brown).

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Command Technology

LaserScript Industrial-strength desktop publishing is now available to PC users with LaserScript, Command Technology's desktop publishing software that specializes in long documents, such as technical publications and manuals.

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LaserScript eliminates paste up with its page imposition and logical sheet numbering feature which produces real camera-rea copy.

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Xerox Desktop Publisher allows non-technical users to easily and quickly combine text, graphics and logos to create multipage, typeset-quality documents. A library of 'style sheets' is provided. Style sheets define page layouts that automatically repeat throughout the text, adding consistency to finished documents. Xerox Desktop Publisher operates on PC XT/AT and compatibles, and with most laser and dot matrix printers.

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Special preview

MSI

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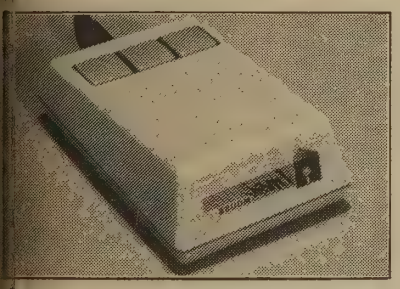

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Conference program at-a-glance

The inside story of a new industry

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Desktop Publishing '87 will deliver the answers to these and other vital questions facing both users and vendors of desktop publishing systems today. By cutting through the hype and jargon surrounding this rapidly expanding market the conference will provide an informative and productive forum for all those involved in the supply or use of desktop publishing technology.

Desktop Publishing '87 will avoid the pitfall of pigeonholing the desktop publishing application into the traditional worlds of corporate electronic publishing or high-end editorial systems. Instead, it will be the first conference to view the world from the perspective of the *desktop* itself. User-control is the essence of this technology – for vendors and corporate executives alike.

am	Monday May 11	Tuesday May 12	Wednesday May 13
	8.30am – 10.00am	8.30am – 10.00am	8.30am – 10.00am
	Keynote session: desktop publishing – evolution or revolution? • Evolution of the desktop device • Information distribution media • Document production development • Technology convergence **Fritz Dressler,** Consultant **Alan Kay,** Apple Fellow, Apple Computers **Paul Brainerd,** President, Aldus **John Warnock,** President, Adobe Systems **John Page,** Vice President, Software Publishing	**Page description languages: the holy grail of desktop publishing?** • PDL standards examined • RIPs and controllers for enhanced output • PDLs and screen displays • The impact of high resolution lasersetting **Dennis Frahmann,** Interpress Marketing Manager, Xerox **Charles Geschke,** Executive VP, Adobe Systems **Frank Lassman,** President, Imagen Systems	**Staying on top of desktop management** • Document management • Applications development • Tracking/database management issues • Accountability/costing **Paul Tiffany,** Senior Consultant, Software Power **Bill Sniffin,** Editor & Publisher, Wyoming State Journal **Shaun Ralston,** Editor & Publisher, PC Publishing
late am			
	11.00am – 12.30am	10.30am – 12.30 am	10.30am – 12.00am
	PCs vs workstations: who will win? • Impact of 32 bit PCs • Price/performance convergence • User interfaces – WYSIWYG or what? • Market strategies and strategic implications **Arlene Karsh,** Director, Publishing Systems Market Requirement Service, CAP International **Lawrence Bohn,** Director, Computer Product Management & Planning, Interleaf **Bruce Gitlin,** VP Market Planning & Support, Document Systems Business Unit, Xerox **John Scull,** Marketing Manager, Emerging Markets, Apple Computer	**Pagination strategies – is making up hard to do?** • Word processing meets desktop publishing • WYSIWYG vs embedded coding • Vendor strategies • Screen focus vs output focus **Brian Skidmore,** Desktop Publishing Product Line Manager, Addison-Wesley **Kathy Andrews,** Lotus **John Meyer,** President, Ventura Software **Paul Brainerd,** President, Aldus **Barry Patton,** President, Command Technology	**Beyond Desktop Publishing – publishing in the 1990s** • Theories of evolution • Desktop publishing and the Information Revolution • Customized publishing • Advances in display technology • Beyond hard copy – the future of fax in the office **Craig Cline,** Senior Market Development Manager, Atex **Fritz Dressler,** Consultant **Alan Kay,** Apple Fellow, Apple Computer **John Gell,** Manager, Electronic Publishing Systems, Eastman Kodak **Linda Parfitt Kazares,** Product Manager Desktop Publishing, MicroPro International Corporation
	Lunch	Lunch	
pm			
	2.00pm – 4.00pm	2.30pm – 4.00pm	
	Impact of peripherals • The case for standards • Typesetting and laser printers • New storage technologies • Scanners – resolution and capability • Image processing – acquisition, storage & manipulation **James Cavuoto,** Publisher, Micropublishing Report **Lou Tortora,** Director of Marketing, Linotype USA **Richard Amen,** President, DEST **JamesMcNaul,** VP Strategic Planning, Datacopy **Brett Butler,** Publisher, Electronic Publishing Report **Robin Grace,** Director of Sales & Marketing, Bitstream	**Strategic integration: the users report** • Case studies • Integration with external databases • Corporate strategy • Desktop publishing & DP **Ernie Buell,** Director of Information Services, GTE Directories **Gayle Cline,** Senior Consultant, The Walton Group	
late pm			
	4.30pm – 6.00pm	4.30pm – 6.00pm	
	Distribution strategies – taking it to the streets • Selling the desktop publishing application • The retail connection • After the sale – support strategies **John Gantz,** Editor, Tech Street Journal **James Klauber,** Vice President Marketing, Letraset	**Networking & communications – how to make your data move** • Linking distributed workstations and PCs • Gateways • Protocol conversion • Peripheral control • Interfaces to CAD/CAM **Mary Coleman,** Director Sales Strategy, NBI **Russell Hertzberg,** Product Marketing Manager, AST Research	

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USER GROUP NETWORK

By Mary Eisenhart

Once again, updates and info. We received a letter this month from **Doug Trueman,** late of the **Franklin User Group.** It seems that there've been a few changes in Apple-clone Land, and the Franklin group has now been absorbed into a national Apple users' group, the **Big Red Apple Club**.

Says Doug, "Big Red Apple Club is a national Apple user group with over 10,000 members. We provide a monthly newsletter, the *Scarlett*, which supports users of all Apple computers, including the IIGS, Laser 128, Franklin 2000 series and Apple CP/M. We also offer commercial and public domain software at a discount. A catalog is sent to all members. Membership is $12 a year. Orders should be sent to Big Red Apple Club, 423 Norfolk Ave., Norfolk, NE 68701, (402) 379-4680." So check it out, whether you've got an official Apple or a not-so-official one.

Mail from **The WELL: L.M. Klungness** writes "I think it is about time we got listed in your *MicroTimes* column"—a reasonable enough suggestion. He continues, "We are **Microenvironmental Information Consortium for Researchers Overseas.** We have branches in Washington State, Albany CA, and Colombia. Our objective is to use the electronic media to provide better access to information about the environment, both in the USA and overseas. We are not all technical, but we do try to use only the best documented and factual information we can find." He adds that MICRO is "dedicated to improving the use of computer communications to defend against environmental and social injustice." If this sounds like your kind of organization, you can call MICRO at (415) 524-9309 or (206) 262-0159. You can also write to MICRO, 712 Avery Rd. W., Winlock, WA 98596.

Also on The WELL, **Ari Davidow** sends along this update on the Hebrew Users Group, mentioned last issue: "The group publishes a quarterly newsletter and supports (so far, at least) people using CP/M, MS-DOS-type computers, and Macs, wherever they fit in. **Jack Love** (who's in charge of the club) is hoping to get an actual users' group meeting happening soon. Dues are $7.50/year ($10 overseas), checks to be make payable to Berkeley Hillel Foundation." For info, call Jack Love at (415) 845-7793.

Speaking of **The WELL,** the **MicroTimes conference** thereon is currently hosting a couple of interesting discussions you modemers might want to get involved in. One is a discussion of the present and future state of the CP/M world, what CP/M users are using their systems for, what they need, and what we, as a magazine, ought to be doing about it. A somewhat more philosophical discussion has to do with the Now What? aspect of the personal computer revolution—is the individual user being squeezed out as erstwhile hackers and hobbyists start going for the corporate gold? Anyway, WELLbeings are cordially invited to join the discussion; nonWELLbeings are invited to either become WELL denizens or to send us your comments on these and other issues via US Mail. The WELL can be accessed at (415) 332-6106 or (415) 848-0841 (East Bay); for further info call its voice number (415) 332-4335.

Larry Bouchez of Lawndale is looking for an **NEC** user group in the South Bay area in Southern Cal. If you know of one, or are similarly inclined, write to Larry at P.O. Box 183, Lawndale, CA 90260.

Tom Sutro of the **Orange Coast IBM PC User Group** reports that the club continues to grow by leaps and bounds, with about 475 current members. He adds that the club's monthly meetings are attended by 250 to 300 people—which means, among other things, that if you're having a problem with your IBM or clone, somebody there has probably dealt with it and can help you. For more information, call Tom at (714) 850-0474, or write OCIPUG at P.O. Box 6100-211, Costa Mesa, CA 92628.

Mac-using BASIC programmers might want to check out a new group in San Francisco. The **Bay Area Mac MS BASIC Users Anonymous,** says **Ted Jones,** meets on the second Tuesday of the month at 7 pm. in the sanctuary of the Noe Valley Ministry, 1021 Sanchez St. in San Francisco. The first meeting, Ted says, will feature utility program demonstration. You're invited to bring a disk and get a copy. He adds that the club offers opportunities for "Show & Tell, Kvetch, Help and Trash-the-Low-Level-Languages." Interested? Give Ted a call at (415) 826-9239.

Good news for Amiga users in the Bay Area: **Amiga Addicts Anonymous** meets on the third Monday of the month at 1331 Concord Avenue in Concord (the Contra Costa County Water District building). You can get further information from president **Jeff Chase** at (415) 933-0217, or write to P.O. Box 4669, Walnut Creek, CA 94596. The club also operates its own BBS, **BUD-LINX**, at (415) 283-5469, 24 hours a day, 300/1200 baud, 8-N-1.

Marin-based Amiga-ites will want to know about **Amiga Users of Marin,** which meets on third Wednesdays in the Science Center, Room 190, at the College of Marin in Kentfield. Meetings are at 7:30 pm. If you'd like to know more, call Bob Galvan at (415) 924-5384.

Outgoing president **D.A. Smart** of the **Roseville Apple Core** reports that **Bruce McLeod** was elected president in February. Bruce is now the proper person to call for club info, and he can be reached at (916) 723-6422. The club now meets twice a month, on the second Wednesday and fourth Tuesdays of the month at the SMUD Foothills Building, training room D, at 7 pm. The building is located at the intersection of Don Julio and Elkhorn streets. The club also offers additional SIG meetings for *AppleWorks*, BASIC, TelCom and Macintosh.

Chuck Thorp of **COAST,** the **California Original Atari ST** user group, gleefully reports that the group has now grown to over 250 members and has had to move to larger quarters. The club now meets on the third Wednesday of the month at the Berkeley Conference Center, 2105 Bancroft, Berkeley. The beginners' meeting starts at 6:30 pm, and the main meeting at 7 pm. Meetings are open to the public, but there is a $2 fee for non-members. Meanwhile, the members-only EaST COAST meetings continue on second Tuesdays, 1015 Esther Drive, Pleasant Hill. Interested Atarians are invited to call Chuck for more info at (415) 945-1949.

Vertical Market Alert: the **Mac Health User Group** meets at various times and locations in the Bay Area. It's intended for users (current and prospective) of the *DentalMac*, *MediMac*, and *ChiroMac* packages, and, says **Robin Guest,** is devoted to "discussing ways to better use these billing and accounts receivable programs and the Macintosh in the health care field." Give Robin a call at (415) 387-3042.

Ralph Gallagher of the **San Francisco Computer Society** reports that the club, which supports users of CP/M and MS-DOS computers, has a new meeting time and place. It now meets on the first Monday of the month at 7 pm at Homestead Savings and Loan, except for the April meeting which will be in the same location on the second Monday, the 13th, at 6 pm. You can call Ralph at (415) 929-0252 for further info, or write SFCS, P.O. Box 783, San Francisco, CA 94101-0783.

Some interesting BBSs are coming our way lately. Highlights from this month's arrivals: **SPACE,** the **Stanford Palo Alto Computer Exchange** (415/964-9039) is a multi-node, 1200/2400, 24-hour-a-day board for what sysop **Jay Fox** calls "PC Professionals and Power Users."

The **tsunami bbs** operates 24 hours a day at 300/1200, 8-N-1 at (415) RAM-2-RAM. If you've been tearing your hair because of the hassles of transferring graphics files between incompatible computer systems, this board is for you. It offers uploads and downloads of graphics programs and picture files; it also collects and distributes public domain graphic format conversion prorgams as well as picture files in MicroIllustrator compatible, IFF, and CocoMax formats.

Those with similar inclinations in the LA area can call the **Microcell BBS** (213/737-2157 or 732-6935), where, says **Fred Heutte** on The WELL, programs such as *READMAC* (for converting Mac .PIC files to MS-DOS format) are available for download. Fred adds that he's encountered a few other excellent MS-DOS type boards in his travels, notably the **Fargo BBS** (701/293-5973) in Fargo, ND, which is run by **Loren Jones** and has over 3000 files available, and **Terrapin Station** (612/623-0152), run by **Howard Ekman.** (Notwithstanding its name, which cognoscenti will immediately recognize as having Grateful Dead overtones, Fred says the board is primarily devoted to "serious" MS-DOS stuff, but Deadheads are, of course, welcome.)

That'll be about it for now. Keep those updates and bulletins and new listings coming in, and feel free to make comments. Also, while we actively discourage people from attempting to post or update user group info by phone because we don't really have the resources to deal with it, we'd like to actively *encourage* you to give us a call if you encounter a BBS we've got listed which seems to have gone a-way. Many sysops are very diligent about keeping us supplied with current info, but others seem to vanish in the dead of night leaving some hapless new person getting weird electronic-noise phone calls in the middle of the night. So if you have the sad experience of calling what you thought was a BBS and getting a less-than-overjoyed person instead, please let us know at (415) 652-3810; let us know the name and phone number of the defunct BBS. All other communiques should be issued by mail—e- to **microx** on The WELL (415/332-6106), US to 5951 Canning St., Oakland, CA 94609. □

BULLETIN BOARDS

209

Region 7 TEC Center BBS. (209) 571-5085. Specializing in music and schools. 24 hrs, 300 baud. Sysop: Dan Guerra.

Inn Finity BBS. (209) 521-6240. Inn Finity is an Atari based BBS. Operates on a 130XE with 320K. Signalman 300/1200/2400 baud, 24 hours a day. ATASCII—ASCII. Sysops Buzz and Jann Kelley.

Bullseye BBS. Stockton, CA. (209) 474-FIDO. IBM and compatibles. 300/1200/2400 baud. Open 24 hours, 8-N-1, FidoNet 161/31 Valley PCUG. Sysop: Bob Loeber. Validation required. Lots of MS-DOS shareware.

The Spotlight BBS. (209) 368-5591. 300 baud, 24 hours, 8-N-1, dual drive Commodore 64 operated. Sysop: The Spot.

213

Aware II (213) 851-0780. Sports BBS with different discussion boards centered around USFL, baseball, etc.

HUG1. The official BBS of the Hollywood Commodore User Group (HUG). All HUG members and visitors are welcome to drop by. (213) 874-8256.

The Wargames RBBS. Call for one of the best IBM RBBS around, running with the latest merge for RBBS-PC. Win free time weekly with secret password. Features include the latest PC news, special news reports, BBS listing, messages, e-mail, downloading/uploading, color/music online. Best of all, it's FREE! Operating 24 hours a day at 2400/1200 baud. NO 300 BAUD ALLOWED! Sysop: Jason Lin (213) 393-9777.

International Collectors Network. Coins, stamps, baseball cards, books, records, antiques and anything collectable can be bought, sold, or traded on the International Collectors Network BBS. Regional lists of collector events and shows in many categories. Also names and addresses of many collector organizations. Accessible using PC Pursuit. Data phone

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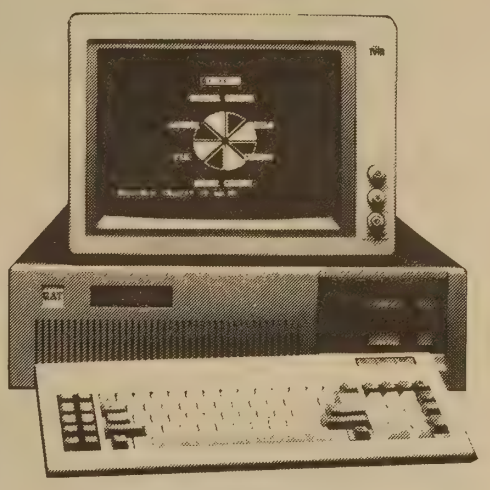

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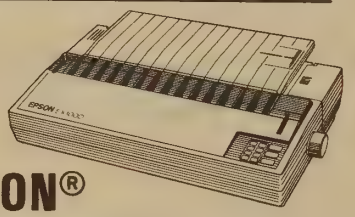

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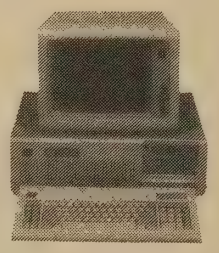

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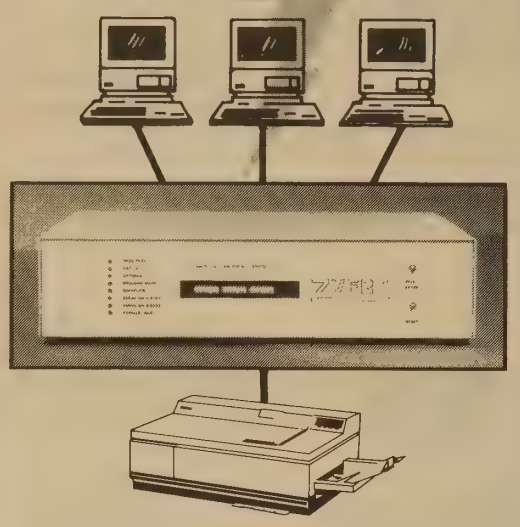

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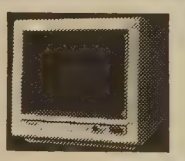

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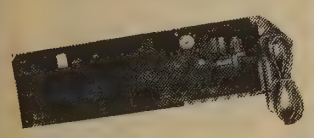

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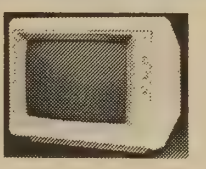

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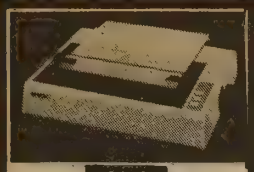
MicahLink. Free, 24 ours, 7 day private BBS for Mac users. Sponsored by Micah, Inc. On-line support, discussions, directory of MicahDrive dealers. (415) 771-1119 modem, (415) 331-6422 voice.

The Pirate's Hollow BBS. 24 hours, 300 baud. Ye Cap'n: The Atari Pirate. (415) 593-6784.

Draco-Net Prime. (415) 474-



EPSON

FX-86E — 240cps, 80 column. . $415
FX-286E — 240cps, 132 column $579
Epson FX-85 — 160cps, 80 col. $369
FX-286 — 200cps, 132 column . $479
DX-35 — 35cps daisywheel . . . $649
EX-800 — 300cps, 80 col. . . . $485
EX-1000 — 300cps, 132 col.. . $645
LQ-800 — 180cps, 24-pin, 80 col $549
LQ-1000 — 180cps, 132 col . . $725
LQ-2500 — 324cps, 132 col.. $1,149
LX-86 — 120cps, 80 col $239

HOMEWRITER 10

Dot matrix printer with near letter quality printing at a home budget price. 100cps draft speed, 80 column.
List $299 *Special* $185

OKIDATA

182P, 120 cps, 80 Col., Parallel . . $279
192+ 160 cps, 80 col. Parallel . . $389
193+ 160 cps, 136 col. Parallel. . $595
293E, 240cps, 136 col . . . . . $Call
294, 400cps, 136 col . . . . . $Call
2410P, 350 cps, 136 col. Parallel $1895

IBM

IBM ProPrinter — 200cps, 80 col . $385
Proprinter XL — above but 132 co $599
IBM QuietWriter II- 60cps, 132 c $1,295

TOSHIBA

P321 — 180cps, 24-pin head. . . $475
P341 — 220cps, 24-pin head. . . $799
P351 — 288cps, 24-pin head. . $999

DIABLO

Diablo 635. . . . . $975
Diablo D80 IF. $2,250

CITIZEN

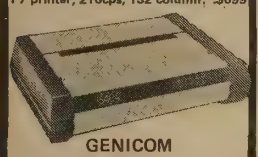
MSP-10 — 80 column. $299
MSP-15 — 132 column $399
MSP-20 — 80 column. $389
MSP-25 — 132 column $559
Premium 35 Daisywheel $550

STAR GEMINI

SB-10, 24-pin, 80 column $450

NEC

P-5 Printer, 132 colmn $969
P5XL Color printe, 132 column $1,085
P6 Printer, 216cps, 80 col $499
P7 printer, 216cps, 132 column. $699



GENICOM

High speed, heavy duty, 18-pin dot matrix printers for business use.
3404 — 400cps, serial interface . . Call
3320 ---------- Call

HEWLETT PACKARD

H-P Thinkjet, 150 cps, 80 col.. . $389
H-P Quietjet Plus, 132 col.. . . . $635
H-P Laserjet $2,289
H-P Laserjet Plus 300. . . . . $2,899
H-P Laserjet 500 . . . . . $3,750

BROTHER

M-1109 — 100cps, 25cps NLQ, 80 col. 2K buffer, dual interface. . . $199
M-1509 — 180 cps, (45cps NLQ), 132 col., friction feed and the new push type pin-tractor so first form won't be wasted. IBM and Epson FX-100+ compatible. Very quiet operation. Dual interface $385
Sheet Feeder SF-40 for M-1509. . Call
2024L — 160cps, 24-pin head letter quality dot matrix printer, 136 col. w/tractor, parallel $845
TwinWriter — Two heads are better than one! 160cps dot matrix and 36 cps daisywheel combined into one printer. Parallel interface . . .$985
H-R-20 — Daisywheel Printer . . . $359
Optioanl keyboard for HR-20 . . . $225
DM-40 — 160cps, 24-pin dot matrix, 136 col., with tractor, para $899

FORTIS

Fortis DM-2010 — 200cps, 50cps NLQ, 80 colum, emulates Epson FX-286 and IBM graphics printer. . . .$355
Fortis DM-2015 — Similar to DM-2010 but 130 column $469
Fortis DM-20 — 160 cps dot matrix, 136 col., NLQ mode, both parallel and serial interfaces. $525
Fortis DX-25 — 25cps daisywheel, 132 column, 7K buffer, quiet operation, built-in parallel & serial. $480
Fortis DH45 — Dual head printer, 160 cps dot matrix, 36 cps daisywheel, Epson, Diablo compatible . . $985

PANASONIC

KX-P1091i — 160 cps, 80 col . .$299
KX-P1592 — 270cps, 132 col . .$469
KX-P1595 — 360cps, 132 col . .$630
KX-P3151 — 22cps daisywheel .$445

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New Low Prices!

- Half height internal hard disks for IBM-PC, XT and Compatibles.
- Boots directly from had disk
- Low power consumption
- Complete with controller, manual, cables & mounting hardware

20-MB	30-MB
Seagate 225	Seagate 238
$369	$449

HARD DISK FOR IBM-AT & COMPATIBLES

High performance full height hard disks.
30-MB Seagate 4038 . . . .$639
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Complete w/software
82-MB Seagate 4096 . . $1,175
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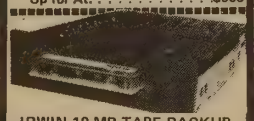
EVEREX

20-MB
TEAC TAPE BACKUP

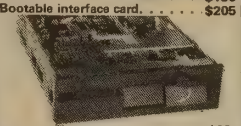
EVEREX 20-MB Internal Tape Back-Up for PC and XT, 4 MB/minute transfer rate. Complete w/control card, cable and manual $575
EVEREX 60-MB Internal Tape Back-Up for AT. Complete with controller, cable and manual. . .$885
EVEREX 60-MB External Tape Back-Up for At. $995



IRWIN 10-MB TAPE BACKUP
Internal half height unit. Direct connects to floppy controller card without taking up a slot. Complete w/$30 tape, software and instruction. $325
20-MB Internal Tape back-Up . . $449

HARD DISK CARDS
PLUS System, 10-MB, slim design $595
MOUNTAIN, 20-MB $750
Tandon 21-MB on a card $475

MEGA
BERNOULLI BOX
10+10-MB . $1,850
20+20-MB . $2,400
Non-bootable interface card . . . $150
Bootable interface card. $205



Teac 55-B, 360K drive for PC, XT $99
Panasonic Drive, 360K for PC, XT $99
Toshiba 360K drive for PC, XT . .$99
Fujitsu 360K drive $99

$105 ea.
360K DRIVE FOR IBM-AT

AST

MULTI-FUNCTION MEMORY CARDS FOR PC/XT

SixPakPlus Cards

Memory installed on card	64K	256K	384K
with paralle, serial ports & clock	$165	$185	$195
above plus game port	$200	$220	$230

Advantage Card for IBM-AT *128K* - $345 *256K* - $385 *384K* - $425
512K - $465 *1-MB* - $515 *1.5-MB* - $545
PIGGYBACK *512K* - $199 *1-MB* - $255 *1.5-MB* - $295
ADVANTAGE PREMIUM *512K* --- $535 *1-MB* ------ $585
512K piggyback — $299 *1-MB Piggyback* --- $355
RAMpage Card for IBM-PC/XT ---------- *256K* - $279 *2-MB* - $525
RAMpage Card for IBM-AT ---------- *512K* - $445 *2-MB* - $615

6-PAK PREMIUM CARDS with Parallel & Serial Ports
512K -------- $369 1-MB -------- $455
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MULTI-FUNCTION MEMORY CARD

Fully compatible with IBM-PC and XT. Comes with Ram disk and print spooler software.
Memory installed on card ---------- *0K* *256K* *384K*
w/parallel,serial,game ports,clock-- $85 $125 $145

intel Above Boards

	64K	256K	1.5-MB
FOR PC/XT ——	$325	$399	$699
FOR AT ----------	128K	512K	2-MB
	$395	$495	$795

INTERFACE CARDS

Hercules Color Card	$145
Hercules Graphics Card.	$189
Hercules Graphics-Plus Card	$199
Orchid EGA Color Card	$355
Orchid Turbo EGA Card	$579
Orchid Tiny Turbo 286 —	$485
Paradise Auto Switch EGA	$359
Quadram EGA+ Card.	$365
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Taxan Gold Card	$385
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Everex The Edge	$275
Everex Graphic Edge	$295
Tecmar Graphic Master.	$465
Tall Tree J-Diskette Controller to hook up 1.2-MB drives in PC/XT	$229
RS-232 Serial Card	$49
IBM Parallel & Serial Card for AT	$145
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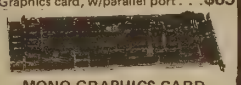
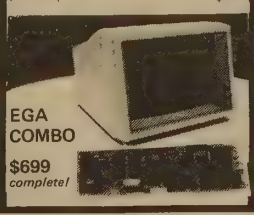
IBM Asyn Card	$85
IBM Monochrome/printer card	$199
IBM Colorgraphic Card.	$199
IBM Enhanced Color Card	$459

MINI I/O & FLOPPY CONTROLLER
Controller card for 2 floppy drives plus parallel, serial, game ports & clock/calendar w/battery all in one card.$125

COLOR GRAPHICS CARD
Compatible with IBM Color Graphics card, w/parallel port . . .$85



MONO GRAPHICS CARD
Hercules compatible, with parallel port $89



EGA COMBO
$699 *complete!*

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ENTERPRISE XT-Plus (4.77-8 MHZ)

- Fully IBM PC/XT Compatible
- Full one-year Warranty
- 640K on mother board
- 150-watt power supply
- 8 Expansion Slots
- AT style Keyboard w/LED
- Parallel Port included
- Serial Port included
- Game port included
- Clock/Calendar w/battery
- Floppy Disk Controller
- Compatible w/EGA Color Card & Net working systems
- Made in U.S.A.

$415	$575	$949	$999
640K memory No Drive	2-360K drives	2-360K and 20-MB Drives	2-360K and 30-MB drives

ENTERPRISE AT (6-8 MHZ)

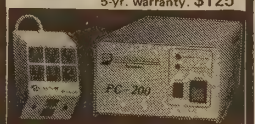
- 512K — expandable to 1-MB
- Fully IBM AT compatible
- 80286 6/8 MHz microprocessor
- Controller for Floppy & Hard Disks
- 1.2-MB Floppy Drive
- AT-styled keyboard w/LED
- Full 1-year warranty

$1025	$1095	$1695	$1850
512K memory 1.2-MB Drive	1.2-MB and 360K drives	360K, 1.2-MB, 30-MB Drives	360K, 1.2-MB, 40-MB Drives

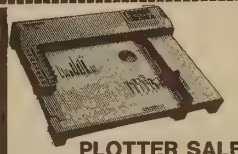
Modem Sale!

Hayes 300, external, 300 baud . $145
Hayes 1200, external, 1200 baud $365
Hayes 1200B, internal w/software $339
Hayes 2400, external 2400 baud $579
Hayes 2400B Internal Modem. . .$545
Hayes Transient 1000 . . . . . .$325
AST Reach, 1200 baud *Special* $199
Watson Voice/Data Modem . . . $375
Watson VIP $275
Prometheus 1200 external $295
Prometheus 1200B internal . . . $250

300/1200 BAUD MODEM
Half size modem easily fit into desk top or portable PC. Hayes compatible.
5-yr. warranty. $125



DATASHIELD
Model 100, 6-plug surge & noise protector w/audio & Visual warning. $65
PC-200, 200-watt backup power supply with built-in surge protector . $279
XT-300, above but 300-watt. . . $365
Turbo-350, Super fast 350-watt. .$535
AT-500, above but 500-watt. . . $625
AT-800, above but 800-watt. . . $685



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ROLAND
DXY-800— 8-pen, hi-speed 180mm/sec. IBM compatible. 11x17" paper . .$Call
DXY-880 — Similar to 800, 8-pen, Hewlett Packard compatible. . . .$Call
DXY-980 — above but w/digital display & electro-static paper holder. . Call
HEWLETT PACKARD
7440A Color Pro — 8-pen $975
7475A — 6-pen $1,395
7550A — 8-pen $2,995

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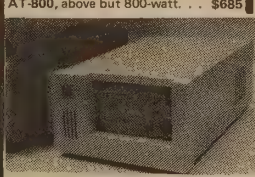
The finest and quietest power supplies in the market. Built-in EMI filter and short circuit/overload protection. External switch for115/230 volt AC input. Can connect 4 drives. 1 year warranty.
150-Watt for PC/XT . . **$69**
200-Watt for AT $109



UNINTERRUPTIBLE POWER SUPPLY
Instant battery back-up system guards against black-out, brown-out and voltage surges. Back-up time 5—20 minutes with audio and visual warnings. Compact design. Special prices.
400-watt . . . . . $350 250-watt $225

IBM PC XT AT

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All systems include keyboards and disk controllers. Monitors are available at big savings too.

XT	256K, One 360K drive, keyboard (268) . .	$1,150
	256K, Two 360K drives, keyboard (278) .	$1,295
	256K, Two 360K drives,20-MB hard disk .	$2,149
	256K, Two 360K drives, 30-MB hard disk.	$2,295
AT	256K, One 1.2-MB drive, keyboard (68). .	$2,395
	512K, 1.2-MB drive, 20-MB hard disk	$3,325
	512K, 1.2-MB drive, 30-MB hard disk (339)	$3,995

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Portable II, 256K 2 Drives . . $2,495
Portable II, 640K, 1 dr. 20-MB $3,295
DeskPro w/256K, 2 drives . . . $1,395
DeskPro-286, 256K, 1.2-MB dr $2,095
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T1100-PLUS — Two 720K drives, LCD screen, battery operated . . .$1,549
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Toshiba 5¼" external drive for 1100+ and 3100 only. $445
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AT&T 6300 COMPUTER

640K memory, 1 floppy drive, serial & parallel ports, clock, Monochrome and RGB color ports, keyboard . . $1,395
Above with two 360K drives..... $1,495
640K memory, 1 floppy drive, 20-MB hard disk, serial, parallel ports, clock, mono & RGB ports, keyboard. $1,795
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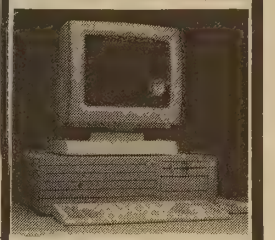
D.O.S. $65



ITT EXTRA/286

10-MHz AT compatible, 640K, 1.2-MB drive also read & write 360K format. 8 expansion slots. Complete with EGA & keyboard $1,795
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IBM RGB Color Monitor. $545
IBM Enhanced RGB Monitor . . .$689
MultiTech 14" EGA monitor . . .$425
Mitsubishi XC-1410C, 14" EGA Color. Similar to Compaq EGA $485
NEC Multi-sync RGB monitor -$599
Quimax PX-IV — 13" RGB, 720x240 line. Has green switch, tilt & swivel base $445
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Taxan 760 EGA Monitor. $525
Taxan 770 Multisyn monitor . . .$575
Thompson 14" RGB Color monitor w/ green & amber switch. $325

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IBM Monochrome, 12", 720-dot .$255
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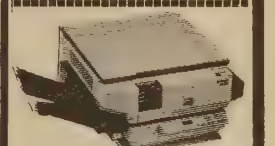
Samsung 12" TTL green monitor . $95
Samsung SF39A7, 12" flat screen TTL Green monitor w/swivel base .$105
Taxan 115, 12" green composite .$125
Taxan 121, 12" green, 1000x360 dots, TTL monochrome $145

★★★ AMBER SCREEN ★★★

Amdek 300A, 12" amber $149
Amdek 310A, 12" amber. . . . $169
Princeton MAX-12, 12" amber. $169
Quimax DM-14A — 13" amber TTL, 750x350 resolution. Tilt & swivel base included. 1 yr warranty. $159
Sansung 12" TTL amber monitor. $99
Samsung SM12SFLAA7,12" flat screen TTL Amber monitor w/base. .$109
Taxan 116. 12" amber composite $129
Taxan 122, 12" amber, 1000x360 dots, TTL monochrome $149

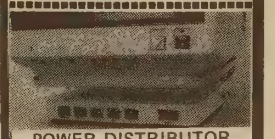
★☆☆ BLACK & WHITE ☆☆★

Roland MB-142, 14" reversible black & white TTL monochrome monitor w/ super hi res. 720x350 dots. . $269

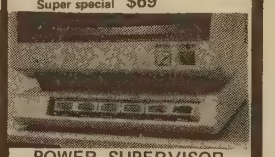


Canon PC PERSONAL COPIERS

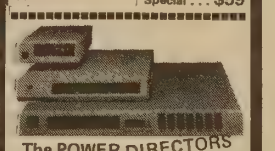
PC-10 Copier — Manual feed, compact size . . . . . ($795) $499
PC-20 Copier — 100-sheet feeder, 1-19 copies. . . . . ($1,095) $679
PC-25 Copier — Make copies up to legal size from original as big as 10x 14. Enlarge 120%, reduce 67% or 78%. . . . . ($1,395) $895
Black toner/drum cartridge $75
Blue, brown, red cartridge $80



POWER DISTRIBUTOR
A power center with surge protector, noise EMI filter, 5 lighted rocker switches and a master switch. Built-in tilt & swivel monitor base. UL listed.
Super special $69



POWER SUPERVISOR
A power center with surge protector & noise EMI filter. It allows fingertip control of 5 different devices. UL approved. Special . . . $59



The POWER DIRECTORS
P-22 — A unique control center & surge protector w/4 lighted and a master switches for computer, printer and accessories. It also filters out EMI & RFI interferences $79
P-2 — like P-22 but w/5 switches .$109
P-12 —Has 6 switches & clock . . .$149

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3. Case/150W Power Supply/Keyboard
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2. 20MB SEAGATE Hard Disk Drive/Controller
3. 1 RS232 Serial Adaptor (1 Optional), Real-time Clock, Game Adaptor, Parallel Adaptor

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2. 1 1.2 MB High Density Floppy Disk Drive
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4. WESTERN DIGITAL Floppy/Hard Disk Controller
5. Mono/Graphics/Printer Adaptor (Hercules Compatible)
6. High Resolution Monochrome Monitor
7. 200W Power Supply
8. IBM PC/AT Compatible Keyboard
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POPnet Berkeley is 15 lines of fun and games for all. Chat, CB channels, games with others. Mail and bulletin boards, of course. Not free, but cheap. 24 hours, 300/1200, (415) 527-4510. **POPnet San Ramon** is 10 lines of fun and games. Chat, CB channels, games with others. (415) 830-1191. **POPnet Walnut Creek** is 19 lines of fun and games. Chat, CB channels, games with others. (415) 932-4263.

Vaudeville Local. (415) 337-8693. 24 hours, 8-N-1, 300/1200. Vaudeville Local is a BBS dedicated to vaudeville and circus arts. Sysop: Arthur Conway.

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The Board. (415) 652-8277. 1200/2400 baud, 8-N-1, 24 hours. Public and private conferences, technical support. For AT&T and compatibles; AT&T PC support conferences. Associated with Bay Area AT&T PC6300 Users' Group. Sysop: Troy Blackburn.

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619

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Sysware BBS. 24 hours, 300/1200 baud, (619) 278-8661. Commodore machines only. Sysop: Don Malette.

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702

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707

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717

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805

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818

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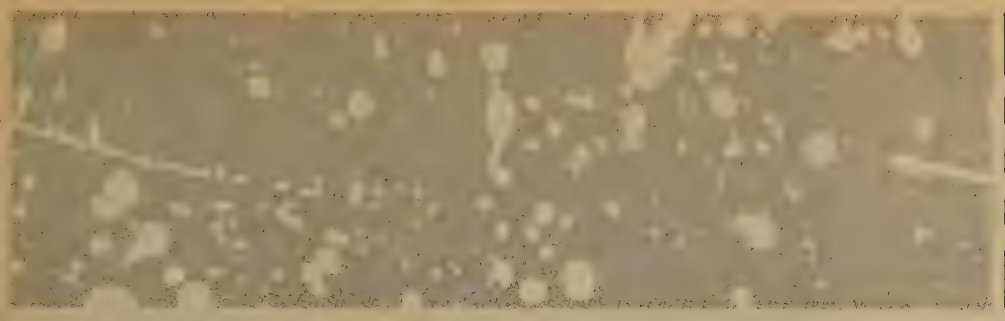

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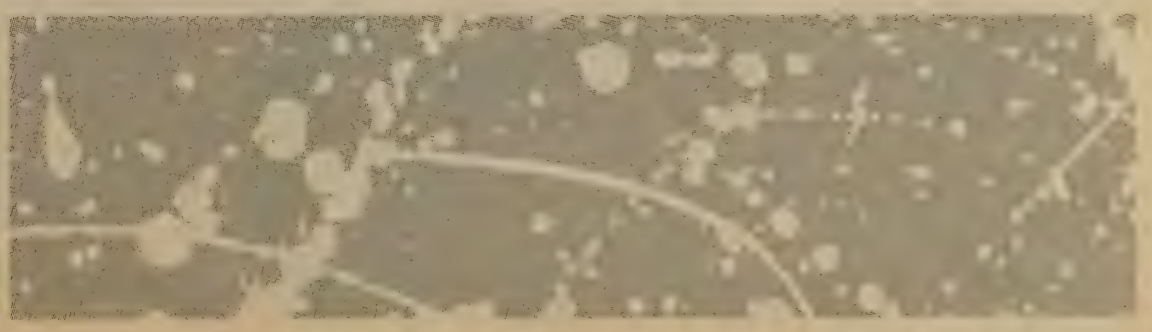

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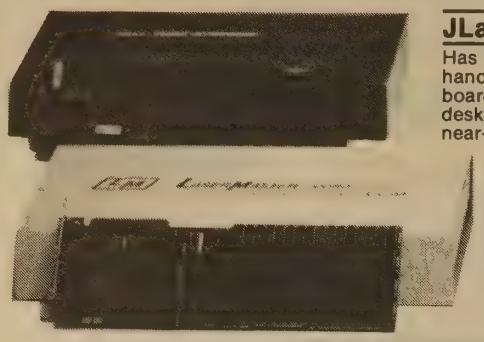

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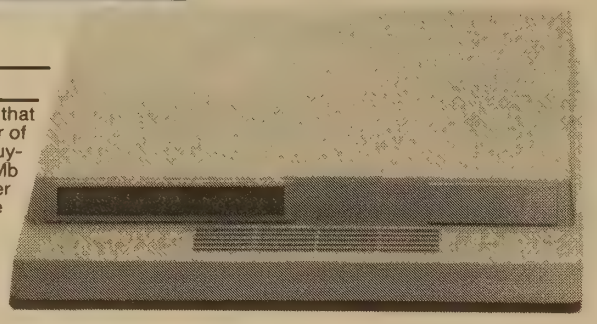

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Atari Resource Magazine (ARM) (818) 446-5813. 24 hrs., Atari and IBM computer users. Eleven message bases: general chatter, hangouts, advertise, for sale, XE Atari, ST Atari, modem, ul/dl, other BBS #s, Bible, job board. Sysops: Bob and Kim Reynolds.

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The MacLodge BBS. (818) 444-9850. 8-N-1, 40 megs, 300/1200/2400. Hours M-F 3:30 pm-7 am; 24 hours on weekends and holidays. Macintosh up/downloads, plus Mac info. Mac users only please. Sysop: Dennis Cosio.

Greycastle BBS. (818) 796-5042. The bulletin board of the San Gabriel Valley Macintosh Users' Group. Operates 24 hours per day at 300 or 1200 baud. 5 megabytes available for 8 subboards, XModem file transfers on SnAPP software. Sysop: Bryan Menell, CompuServe ID 72307,2100, GEnie ID B.MENELL.

The Outpost RCP/M. (818) 353-8891, 300/1200 baud, 24 hours. Online games, occult and general text files, CP/M, Turbo Pascal. Sysop: Phil Hansford.

AT&T PC6300 Users' Group BBS. (818) 954-0530. 300/1200 baud, 8-N-1, 24 hours. Only So-Cal BBS "officially supported" by AT&T. Sysop: Eric L. Levinson.

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IEEE Computer Societies Committee on Artificial Intelligence and Expert Systems sponsors an open meeting the third Thursday of every month, 7-10 pm, at Foothill College. For more information please call the IEEE council office at (415) 327-6622.

Computer Professionals For Social Responsibility. P.O. Box 717, Palo Alto, CA 94301. (415) 322-3778.

Computer Professionals For Social Responsibility (East Bay). 902 Rose Ave., Piedmont, CA 94611. Contact Bruce Joffe, (415) 768-0288 days, (415) 654-5263 eves.

FOCUS-MED (Federation of Computer Users in Medicine). Open to all physicians and health professionals. Practice management consultant registry. (415) 626-4600.

FOCUS-DDS (Federation of Computer Users in Dentistry). Open to all dentists and dental professionals. Practice management consultant registry. (415) 626-4600.

ITRA Independent Technical Representative Association is an organization dedicated to helping people better understand the Personal Computer (IBM). Contact Tim Jones, 870 Market St. #609, San Francisco, CA 94102, (415) 421-4872 for meeting time and date.

MCTUG (formerly Marin County TRS-80 Users' Group). MS-DOS, CP/M and Tandy users group. Meets 7:30 pm on the first Monday of the month at the Larkspur Masonic Lodge, 1122 Magnolia Ave., Larkspur. Contact Dr. Frank Hovell, 907 Sprucewood Court, Petaluma, CA 94952, (707) 762-5740.

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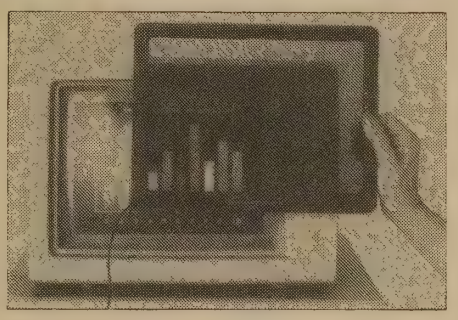

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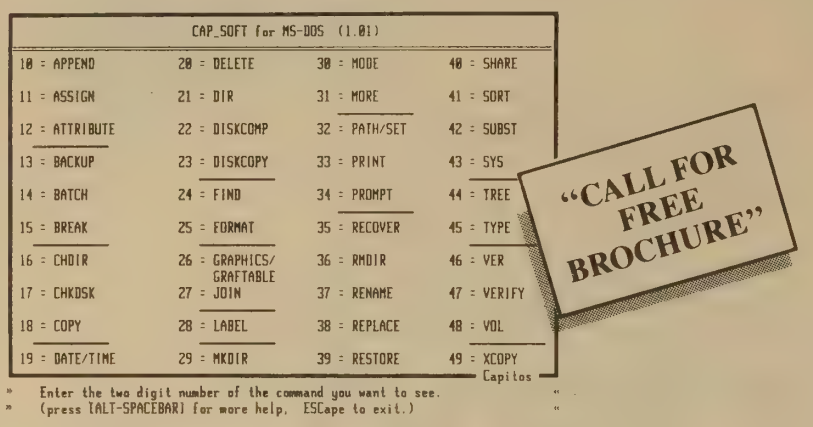

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San Bruno Computer Core. Meets 7:30 pm alternate Wednesdays. Call (415) 952-9309 for address and info.

San Francisco Computer Society (Formerly the San Francisco First Osborne Group). A society for users of portable computers and/or the CP/M operating system. P.O. Box 783, San Francisco, CA 94101-0783. Meetings on fourth Thursday of the month, St. Aidan's Church, Diamond Heights and Goldmine Dr. in SF. All are invited. Dues $10/yr.

Software Entrepreneurs' Forum, PO Box 61031, Palo Alto, CA 94306. (415) 854-7219.

PATCA (Professional & Technical Consultants Association). 1330 S. Bascom Ave., Suite D, San Jose, CA 95128. (408) 287-8703.

BAYMUG. Bay Area Micro-Processor User Group. General computer group, mostly CP/M and S100. All types of interests welcome. Celebrating our 10th year of meetings! Meetings 1441 Rolins Rd., Burlingame, CA, 1st Thursday, 7:30 p.m. Contact Victor K. Bailey, P.O. Box 248, Pleasanton, CA. 94566. (415) 462-4442.

Byte Hum. A user group for computer buffs concerned with human needs, or social activists who want to learn about computers. Let's put all that knowledge to work for social transformation! Sponsored by the Humanist Party. Contact Rick Wall, (415) 495-6555 or (415) 337-2530.

Society for Technical Communication. STC is a professional organization dedicated to furthering the art of technical communication. The San Francisco chapter has about 200 members. Writers, artists and others interested in technical communications are welcome. Meetings 3rd Wednesday of every month, 5:30-7:00 pm; call Sarah Collings, (415) 383-9631 for info.

North Bay Users Group (NBUG). Family computer club devoted to all aspects of computing. Monthly newsletter, library, software demos, etc. Meetings at "CAVE" school, 2nd Tuesday of the month, 7:30-10 pm. Contact Gloria Hutchinson, P.O. Box 7116, Vallejo, CA 94590, or call (707) 644-9327.

Robotics Society of America. Dedicated to disseminating information about robotics, artificial intelligence and machine controls. Mailing address 36 Newell St., San Francisco, CA 94133, (415) 673-2376. San Francisco chapter meets 2nd Monday of the month, 8 pm, Homestead Savings 5757 Geary Blvd. Contact Jim Strope, (415) 552-6564. Berkeley branch meets 6:30 pm, last Wednesday of the month, Claremont Branch, Berkeley Library, Ashby and Benvenue. Contact Soren Knudson, (415) 843-2344. Sunnyvale Pongbotics meets in Sunnyvale on the De Anza College campus, Room 22, first three Wednesdays of the month, 7:30 pm. Contact Bill Lee, (408) 281-2252.

Silicon Valley Computer Society. Meetings 7:30 pm, second Wednesday of the month, Duane and Britton SE corner, Sunnyvale. Contact Dick Verna, (408) 262-2679 for information.

PicoNet. A microcomputer users group. Meets on the second Thursday of each month at 7:30 pm at CMX Corp., 2230 Martin Ave., Santa Clara, CA. Formerly specialized in CP/M software, but has broadened its scope to encompass the entire field of computer-related high technology. Extensive library of CP/M pd software; preparing PC-DOS library. Monthly meetings, periodic newsletter, BBS, C language SIG. Call (408) 374-8090 for recorded message on next meeting's topic.

MicroPsy. Users group devoted to the application of microcomputers in the psychological fields. Meetings first Saturday of the month, noon. Call for information: Martin Schaaf, M.S., (415) 454-6761.

C Group of Northern California. Forming C programmer support group. Group's function will be to exchange information, discuss programming techniques and problems, etc. Anticipate monthly meetings at rotating locations. First meeting to be held 7:30 pm, Tuesday evening, November 4th, in Mill Valley. Call (415) 383-7006, or contact Ben T. Choate III, P.O. Box 1533, Mill Valley, CA 94942.

BADGE-Bay Area Developers Group. Meets third Thursday of every month, 7:30 pm, at Stanford University Building 200, Room 002. Contact Tom Rokicki or Bob Alverson, (415) 326-5312 for information.

California Genealogical Society Computer Interest Group. Meets second Saturday of the month, 300 Brannan St., 4th Floor, San Francisco. Call W.R. Shepard, (415) 989-5441 for information.

Hebrew Users Group., Supporting the use of Hebrew and Hebrew-based languages on computers. Contact Jack Love, (415) 845-7793 (Berkeley Hillel).

Gay/Lesbian PC Users Group. We meet on the second Sunday of each month. This is the group where we show our hardware and software and share our knowledge. All levels of users are welcome. Meeting place is the MCC San Francisco, 150 Eureka Street. For more info, contact Jim at P.O. Box 42429, San Francisco, CA 94101, (415) 334-9761.

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JUG (Jefferson State Computer Users Group). Many SIGs, newsletter. Dues $5.00 year, some SIGs additional. Contact JUG, P.O. Box 457, Gold Hill, OR 97525-0457.

MicroPro Users Group of America. National group with over 200 members worldwide. Dedicated to supporting MicroPro products, especially WordStar and InfoStar, for any hardware. c/o Procyon Associates, 140 Riverside Drive, New York, NY 10024. (212) 595-4811.

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PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

KAPPA (Memphis Kaypro Users Group). Meetings at 2 pm, 1st Saturday of the month, Room 2, Jennings Hall. Contact Hugh Lamar, 5983 Macon Cove, Memphis, TN. (901) 377-4140.

The AppleWorks Users Group (TAWUG). c/o Regional Rep, 27421 Berenda Way, Hayward, CA 94544, (415) 887-7499.

FORTH Interest Group, International Office. P.O. Box 8231, San Jose, CA 95155. For further information call (408) 277-0668.

Apricot User Group (APRICUG). Box 98, Malverne, NY 11565.

Spellbinder Users' Group has an international newsletter with useful macros written by members, advice on new applications, news, and word-processing problem solving. All experience levels. California members welcome. Write P.O. Box 14, Newark, Notts, England NG24 4TP; telephone (0636) 77313; telecom Gold/Dialcom Mailbox 72: MAG95610.

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Apple Fontrix Club. Monthly newsletter. P.O. Box 29857, Thornton, CO 80229-0857.

Visually Impaired Computer Users. The purpose of this group is to gather information that will assist the blind or visually impaired person in utilizing the enromous potential of computers. It supports **CompuHelp**, a menu driven database-bulletin board programmed for use by the blind and visually impaired. It is available 24 hours a day, 7-days a week, 300/1200 baud, 8 or 7 bits, even or no parity, 1 stop bit. (916) 786-3923. Compuhelp is also available on disks. For more info, contact Otto C. Haiungs, Chief Executive Officer, Sysop, at P.O. Box 1352, Roseville, CA 95661-1352. (916) 783-0364.

USER GROUPS

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APLBUG (APL Bay Area Users' Group) has monthly meetings and a newsletter for people interested in APL (A Programming Language). It meets the third Monday of each month at 7:30 pm in the offices of I.P. Sharp Associates, 220 California Avenue, Palo Alto. Annual dues are $15. Contact Curtis Jones, (408) 292-4060, for information.

AT&T

Bay Area AT&T PC6300 Users' Group. Official group supported by AT&T. Meeting time and location vary. Contact Victor A. Borromeo, 764 St. Francis Blvd., Daly City, CA 94015. (415) 477-8124 days, (415) 991-4164 eves/weekends, or Maurice Aranda, (415) 972-5436 for information. BBS (415) 652-8277, 1200/2400, 8-N-1, 24 hours, 7 days.

ACTRIX

ACTRIX Computer Enthusiast Society. Membership ($20/yr) provides public domain software, group rates, discounts for owners of Actrix/Access Matrix microcomputers. Meetings at Sunnyvale Community Center, last Wednesday of the month, 7 pm. Contact K. Edward Lynch, 1405 Phelps Ave. #29, San Jose 95117, (408) 756-5104, for more information.

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NEXT ISSUE

Next month's *MicroTimes* features a special section focusing on the world of *Lotus 1-2-3*. Jeff Spurrier talks with Rick Gibson of The Consortium, an association of developers of Lotus-related products, about *HAL* and other recent developments in the Lotus aftermarket. Woody Liswood points out the usefulness and versatility of *Lotus Freelance*, and we'll have a tutorial from Robert Moskowitz on avoiding common spreadsheet errors. We'll also include a special section of *1-2-3*-related product announcements.

In other items, Birrell Walsh looks at "thought assisters," a new breed of software that helps you think, Sharon Rufener discusses *Show Partner*, a low-cost presentation graphics system, and Charles Seiter extols *Trapeze*, the "spreadsheet without limits" for Macintosh. We'll also visit Portal, a new teleconferencing system based in the South Bay.

All this and more will be arriving in the June issue of *MicroTimes*, available at a location near you May 15.

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Coleco Adam Users Group. For info send SASE to: CAUG, 2316 Stuart St., Berkeley, CA 94705. Voice (415) 549-3437, data (415) 549-3378.

South Bay ADAM Users' Group. Now forming a users' group exclusively for the ADAM enthusiast in the south bay area. Call Steve for more info at (408) 253-4190.

East Bay ADAM Group. Forming an ADAM users group in the East Bay area. Call Tom for more information — (415) 886-2884, or write 6097 Slopeview Ct., Castro Valley, CA 94552.

AMIGA

First Amiga User Group. We offer demonstrations of software and hardware, a public domain library, and general user help at our monthly meetings, which are held on the first Tuesday of each month in Belmont, CA. Meeting address 1300 Fifth Ave., Belmont, CA, 94070, 7 pm, first Tuesday of the month. Contact Tim Avery/ Kayvan Pejooh, (415) 595-5452.

First Amiga User Group the South Bay. End-users, enthusiasts, developers and programmers all welcome. Meetings 2nd Fridays, library, 40 N. Milpitas Blvd., Milpitas, 7-9 pm. Contact Jim Thomas, P.O. 1863, Fremont, CA 94538, (415) 651-0201. BBS (415) 659-9169.

ACCESS. The Amiga and Commodore Computer EnthusiastS Society (ACCESS) holds its meetings on the 3rd Wednesday of the month in Room 107 of the Chabot Building in Hacienda Business Park, Pleasanton, CA. Contact Skip Perkins, (415) 443-4778 for information.

Sacramento Amiga Computer Club (SACC). Meets the second Wednesday of each month at the Sacramento Municipal Utility District (SMUD) auditorium, 6201 S. St. just off Hwy 50 at the 59th or 65th St. exit, 7 pm. For more information call George Leone, president, at (916) 944-7400 or write to SACC, P.O. Box 19784, Sacramento CA 95819-0784.

Amiga East Bay Info Exchange (AEBIE). P.O. Box 485, Pinole, CA 94564. For end users in the West County, North and/or East Bay area.

AD-Amiga Developers Group. Meets the last Monday of each month at 6 pm, 2618 Telegraph Ave., Berkeley, (415) 845-4814.

AEBUG-Amiga East Bay User Group. The Original Users Group meets the second Wednesday of each month at 2618 Telegraph Ave., Berkeley, 7 pm. (415) 845-4814 for information; BBS (415) 845-4812.

AUGment, the Amiga User's Group of Silicon Valley. P.O. Box 1863, Fremont, CA 94538-0186. Contact: Jim Thomas. Information line: (415) 651-1160. BBS: (415) 659-9169. Meetings every second Friday at Hewlett-Packard, 5301 Stevens Creek Blvd., Cupertino.

Amiga Addicts Anonymous. Meets the third Monday of each month, 7:30 pm, at 1331 Concord Ave., Concord (CCC Water District) CA. For more into, contact Jeff Chase, president, P.O. Box 4669, Walnut Creek, CA 94596. (415) 933-0217. BBS: (415) 283-5469.

AUM-Amiga Users of Marin. Meets the third Wednesday of each month, 7:30, at the College of Marin, Science Center, #190, Kentfield, CA. For more info, contact Bob Galvan, 119 Willow, Corte Madera, CA 94925. (415) 924-5384.

APPLE

San Francisco Apple Core Special Interest Groups, BBS, large public domain software collection, seminars, newsletter, group buys of hardware / software, help network. Meetings: (Apple) Daly City library, 3rd or 4th Saturday of each month, 40 Wembley near Gellert (Hickey exit), 10 am, call 433-7170 for carpool info. East Bay meeting, Concord library, 2618 Telegraph Ave, 1st Tuesday each month, 7 pm. Call 845-4810 for info. Mac Meetings: 3rd or 4th Saturday, Daly City Library, noon. Call 433-7170 for info; also Concord library, 3rd Saturday, 10 am, call 427-4821 for directions. Info: SF Apple Core, 1515 Sloat Blvd., Suite 2, San Francisco, CA 94132. (415) 566-2342 (voice), (415) 474-8608 (BBS/modem).

The AppleWorks Users Group. c/o TAWUG Regional Rep., 27421 Berenda Way, Hayward, CA 94544.

SPCA (Society For The Prevention of Cruelty To Apples) Apple user/interest group. Features: Monthly meeting with newsletter, raffle and door prize hard / software, demonstrations, lectures, discussions, $20 per year, pro-rated after June. Meetings last Wednesday of month, 7:30 pm. Contact Paul Meyerholtz for info (415) 490-8209.

Association of Apple 32 Users Macintosh, Lisa. An association of "knowledge workers" who wish to share information on products, applications, and events. User-developed, non-copyrighted software, SIGS, newsletter. P.O. Box 634, Santa Clara, CA 95052.

San Leandro Apple Eaters Users Group. Apple II users group meets the first Thursday of each month at San Leandro High School (room 213). New owners to experienced users welcome: Appleworks, education, hardware/software, telecommunications. Call Open Campus BBS area 11 (415-895-0135) or voice (415-782-9250) for more information.

Pen-Apple (Peninsula Apple Users Group) Meetings 2nd Thursday each month at 7:30 pm, Ampex Corporation cafeteria, 421 Broadway, Redwood City. Contact Pierre Testart, (415) 952-9309.

Diablo Valley Apple Users. Apple II family users and Macintosh users. Special Interest Groups meet monthly. Featuring a library of public domain software collection and our own Club's DOM's, monthly newsletter, group buys of hardware and software as well as monthly demos of new products. Meetings held on 1st and 3rd Friday each month at 7 pm at the Willow Creek Center, 1026 Mohr Lane in Concord. Contact Merle Zmak, president, P.O. Box 5031 Concord, CA 94524, or call (415) 672-7596 for additional information.

South Peninsula Apple Computer Enthusiasts (c/o David Harris, P.O. Box 1257, Palo Alto, CA 94302) meets near the Varian Credit Union, Bldg. 4C, 611 Hansen Way, Palo Alto, at 7:30 pm on the first Tuesday of every month to exchange information about available hardware, software, events, publications, and methods on Apples, and to encourage collaboration on projects. Call (415) 856-9126 answering machine takes 30-second messages.

Roseville Apple Core. Discover your Apple's Core! We meet on the second Wednesday and fourth Tuesday of each month, 7:00, at SMUD Foothills Bldg., Training Room D, at Don Julio and Elkhorn. There are additional SIG meetings for AppleWorks, BASIC, Telcom and Macintosh. We also feature a monthly bulletin, large public domain library, and new member's disk, all for just $12 yearly membership. C'mon out and bring a friend. For more info, contact Bruce McLeod, president, P.O. Box 1377, Roseville, CA 94551. (916) 723-6422.

Apple Sac. (Sacramento) Meetings on first Wednesday and third Tuesday every month at Madison School, 5241 Harrison St. (corner Harrison and Madison Ave. 1/4 mile west of 180 on Madison Ave.), 7:30 pm. Contact Ray Beam, president, P.O. Box 254645, Sacramento, CA 95825, (916) 448-6115 for more information.

Stanislaus Apple Group. You're invited! Stanislaus Apple Group meets 2nd Tuesday each month, 7 pm, Room 124 Ag Bldg, Modesto JC, main campus. We support Apple II and compatibles, Apple III, Mac, Lisa. Newsletter, BBS (209-529-3202), extensive PD software library. More info call (209) 523-7289 (eves).

Santa Cruz Apple User's Group meets at Cabrillo College, Aptos, ILC building, 1:30 pm, second Sunday of the month. For information contact Tim Ruckle, president, (408) 462-3154.

Apple Gardens. New Apple II users group. Share info, programs, group purchases. Brand name disk, new products, software demos and evaluations. Call Tom Turley at (415) 468-4045.

Apple P.I.E. Meets at Lynbrook High School, Room 30, 1280 Johnson Ave., San Jose, 4th Thursdays, 7:30 pm. Contact George Ingalls, P.O. Box 2185, Santa Clara, CA 95055.

ATUNC-Apple Three Users of Northern California. Explanations, demos, large public domain library. Mailing address: 220 Redwood Highway 184, Mill Valley, CA 94941. On Apex and Draconet BBSs.

Apple East Bay Users meets the last Tuesday of each month at 2618 Telegraph Avenue, Berkeley, at 7 pm. (415) 845-4814 for information; BBS (415) 845-4812.

Apple Pickers of Sonoma County. Meets second Saturday of each month, 1735 Shuhaw Hall, SRJC, 1 pm. Call for sample newsletter: Mary Lou Mayes, (707) 763-8322.

TVAUG-Tri Valley Apple User's Group. Meets on the first Thursday of each month, 6:30 at 7079 Commerce Circle, Pleasanton, near the intersection of Hwys. 580 and 680, to discuss our Apple IIs. A special beginners group meets on the second Thursday of each month. For more info, contact Dan Balsley or Esther Farnstrom, 9814 Davona Drive, San Ramon, CA 94583. (415) 828-6237 or (415) 829-3672.

ASHTON-TATE

Framework/Editor Bay Area Users Group (FREDBUG) Purpose of the group is to share programming and applications techniques under FRAMEWORK for the business and technical professional. Call for info: Rudi Wiedemann, (408) 730-4159.

San Francisco dBase User Group For advanced users and programmers. Meets once per month. Membership required for attendance. Contact Frank A. De Coster, 1100 Gough St., San Francisco, CA 94109, (415) 474-6693.

East Bay dBASE Users Group. Meets 3rd Sunday, 1 pm. Call Darrell Bross (415)873-7522 or Alexandra Saur (415)893-7637 for meeting address.

dBase II/III SIG of SF PC Users Group meets third Monday of each month, 7-8 pm, Fort Mason, San Francisco. Contact Ron Freshman, (415) 459-6613.

DBDVLPRS (dBaseIII Program Developers). Call for information on meeting time and location: Gil Orlik, (415) 931-0377, 2240 Buchanan St., SF 94115.

ATARI

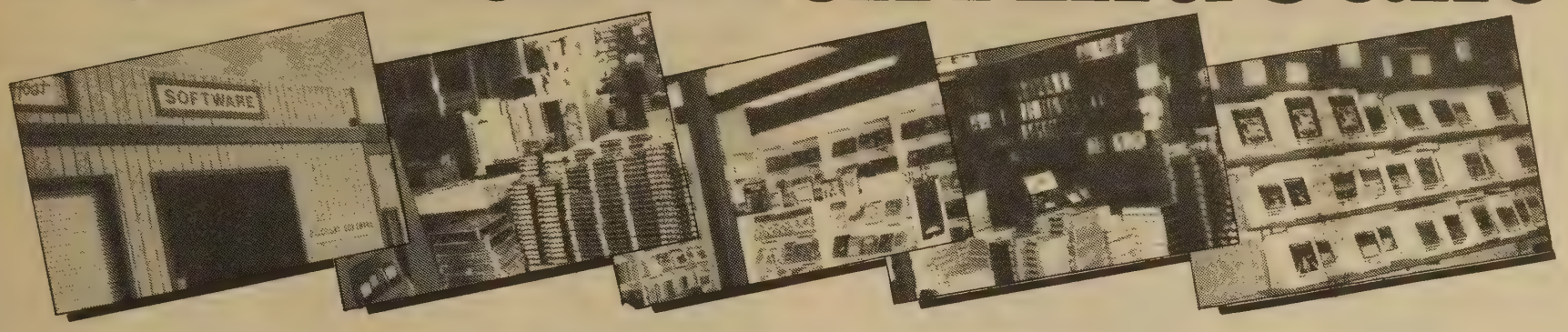
ABACUS (Atari Bay Area Computer Users Society) All ATARI users or prospective users are welcome. Membership ($15/year) provides public domain software, low cost blank disks, monthly newsletter, group prices on hardware and software, help from experts, low cost classes for beginners. Meetings first Saturday of the month, Fort Mason, SF, Room 300, Bldg. C, 10 am-2 pm. Contact Bill Zinn, P.O. Box 1823, Mill Valley, CA 94941. (415) 753-8483.

A.C.M.E. (Atari Computer Marin Enthusiasts) Meets monthly in Marin, third Thursday evening monthly from 7 pm on. Gallinas School, 177 N. San Pedro Rd., San Rafael. Contact Bruce Frank, (415) 435-6020, P.O. Box 222, Tiburon, CA 94920.

Diablo Valley Atari Computer Enthusiasts (D.A.C.E.) Contact Mike Randis, 3602 Dumbarton St., Concord, CA 94519, (415) 798-6565.

Bay Area Atari Users Group We have a 24-hour 300/1200 baud BBS at (408) 249-7722.

Fun With Dick And Jane



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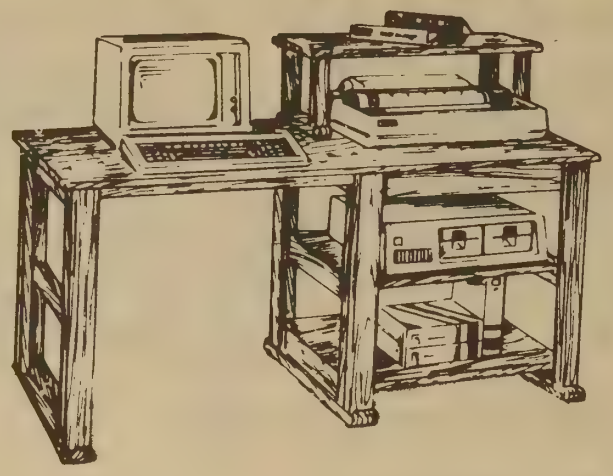

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San Leandro Computer Club Although open to all computer users, this group is primarily oriented to Atari computer owners. Our club is considered one of the best in the country, worthy of consideration by both novices and experts. Meetings 1st Tuesday of the month at San Leandro Community Library, 300 Estudillo Ave., San Leandro, CA. Contact Phil Mitchell, P.O. Box 1525, San Leandro, CA 94577-0152 for more info, or call (415) 351-2208.

COAST User Group (California Original Atari ST). Public domain disks, MIDI, support, newsletter, help for the Atari ST line of computers. Advice and programs not to miss. Meetings on the 3rd Wednesday of each month, at The Berkeley Conference Center, 2105 Bancroft in Berkeley, CA, 7:00 pm, 6:30 for beginners. $2.00 admission for non-members. EaST COAST meets 2nd Tuesday of the month at 1015 Esther Drive, Pleasant Hill, 7:30 pm. Members only. Dues $24.00 yr. Contact Chuck Thorp, president, 1015 Esther Drive, Pleasant Hill, CA 94523, (415) 945-1949 for information.

Redwood Atari Group (R.A.G.) Meets 4th Saturday, 1-4 pm, at Coddingtown Meeting Room, 1100-B Coddingtown Center, Santa Rosa. Contact Mikkel Lawrence, (707)585-3949, 21 Creekwood Sq., Rohnert Park 94928.

ATTACHE

Attache UNL Otrona may be dead, but the Attache Users News Letter Lives ON!! Contact Jim Ayers, 301 Poplar St., Mill Valley, CA 94941. (415) 388-4805. Meetings 7:30 pm, 2nd Wednesday.

First Attache User Group News. Support, news, and cooperation for users of Otrona Attache and 2001 portable computers. Since '82. Contact Charles Raisch, 1827 Haight St. Suite 16, San Francisco, Ca 94117, (415) 221-3415.

AUTOCAD

AutoCAD Users Group. Call Gen Katz (415) 530-8870 for information about future meetings.

AutoCAD User Group. Call Volker Ackermann, (415) 485-0958 for information.

AutoCAD Users Group of Santa Cruz. Meetings held at Citicorp conference room, 806 Ocean Street, Santa Cruz, 7-9 pm, 1st and 3rd Tuesday of the month. Call (408) 462-0448 for information.

BASIS

Bay BUG Basis 108 Users meet every first Friday of the month at College of Alameda Computer Room, 7:30 pm. Contact Roger Bernhardt, 536 Mission, San Francisco or call (415) 221-0262 for more information.

BONDWELL

Bondwell Users Unite! Trying to start group, need your help. All levels welcome. Meeting address 405 Stierlin Rd. #17, Mountain View. Time and date to be announced. Call Tom Gatlin at (415) 961-0450 for more information.

BPI

Bay Area BPI Users Group meets the fourth Tuesday of each month. For more information contact Mitch Paioff, 5097 Tisdale Way, San Jose, CA 95130, (408) 866-4310.

CANNON

Cannon AS 100. Anyone who owns a Cannon AS-100 computer and is interested in forming a group to share problems and solutions write HTF-4111 Hilltop, Vacaville, CA 95688.

CASIO

Casio Research Project. Discussion and collaboration; creation of plug-in expansion board using VLSI chip. Share programs. Meetings TBA. Contact Julius M. Zebrowski, (415) 969-9458.

COMMODORE

San Francisco Commodore Users Group PD library, classes, in-depth demonstrations, eprom programmer, BBS-ET (415) 861-4485. Meeting time and place--call for details: Malcolm Lowe, (415) 832-1539.

Diablo Valley Commodore Users Group Meetings Contra Costa Water District Auditorium, 1331 Concord Ave., Concord, CA, second Thursday of month at 7:30 pm. Write DVCUG, P.O. Box 27155, Concord, CA 94527, or call (415) 838-2838 for more info.

Napa Valley Commodore Computer Club Meets first and third Mondays, 7:30 pm, at Northwood Elementary School, 2214 Berk St., Napa. Take Redwood Road to Dover St. to Berk St. Contact President Dick Bull (707) 257-3773 or vice-president Roger Pruym (707) 253-1690 for more info.

Lake County Commodore Users Group Contact Al Reuss, P.O. Box 388, Clearlake, CA 95422.

Marin Commodore Club Meets at Redwood High School, Corte Madera. Visitors welcome. Contact Elmer Johnson for information: 665 Las Colindas, San Rafael, (415) 479-0426.

Peninsula Commodore User Group Public domain library, demonstrations, user help, newsletter. Membership is $25 per year. Non-members pay $2 at door. Meetings are 3rd Tuesday of each month. Meeting place is the Church of the Good Shepherd Hall, 1300 5th Ave., Belmont (across from city hall). For more info call (415) 595-5452 between 9 am and 6 pm, or call our BBS at the same number after 6 pm.

The Commodore Connection. Meetings at Homestead Savings, 1411 A St., Antioch, 3rd Monday of the month, 7:30 pm.. Contact Nita Hoops, Secretary: (415) 754-9054. BBS: (415) 458-1005, Commodore only, 24 hours, 300/1200.

Commodore User's Group of Hayward. The CUG of Hayward meets the first Saturday of each month from 3 to 5 pm at the Commodore Computer Center located at 22521 2nd St., Hayward. Call (415) 886-1916 evenings between 5 - 8 pm or (415) 537-1323 days between 10 am and 5 pm.

NBUG (North Bay Users Group). Contact Jim Stephens, president, 124 Delgado St., Vallejo, CA 94591, or write P.O. Box 7116, Vallejo, CA 94590.

Santa Rosa Commodore Users Group. Walter Saures, President, 333 East Robles Ave., Santa Rosa, CA 95407-7921. (707) 584-7009. Information line, (707) 526-6464 SRCUG-BBS.

Family Roots Searchers. Using Commodore SX-64 computer, Dynax DX-15, PractCalc II, Word Pro 3 Plus, Family Tree. Meetings by appointment only. Vera Ross, Atchison Village, Richmond, CA 94801-2942, (415) 235-8716.

PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

Silicon Valley Commodore Computer Club. Meets 4th Wednesdays, H.P., 5301 Stevens Creek Blvd. at Lawrence, 7 pm. Contact Roger Weiss, (408) 942-2442.

ACCESS. The Amiga and Commodore Computer EnthusiastS Society (ACCESS) holds its meetings on the 3rd Wednesday of the month in Room 107 of the Chabot Building in Hacienda Business Park, Pleasanton, CA. Contact Skip Perkins, (415) 443-4778 for information.

C.O.W. Commodore Owners Workshop. Meets at the San Bruno Rec Center (in San Bruno Park) the third Thursday of every month from 7-10 pm. Machines welcome. We have a huge PD library that users can check out. We usually have demos each meeting; we have BASIC programming classes and help each other along. For further information call the San Bruno Parks and Rec at (415) 588-1201.

Fairfield Commodore User Group. Meetings Solano County Education Bldg., 1st and 3rd Mondays. Contact Ben Harris, 1182 Dana Dr. Fairfield 94533, (707) 422-1669.

FUNHUG — Fremont, Union City, Newark, Hayward Users Group. For users of Commodore 64, 128, and Amiga computers. We have software/hardware reviews and demos, plus open discussion time. We have over 90 disks in our library. Bring $2 to help pay for the meeting place. Group meets every third Wednesday at 7:45 at 5445 Central Ave., Newark. For more info and a map send SASE to Russ Fisher, 36015 Pizarro Dr., Fremont, CA 94536.

64/MORE. Commodore User Group. P.O. Box 26811, San Jose, CA 95159. BBS (408) 225-2295, 300 baud, punter protocol, 24 hours. Sysop: Steve Nichols.

COMPAQ

SF Compaq Users Group is now a SIG of the SF IBM PC Users Group. For information please call D. Blow at (415) 221-2764.

COMPUPRO

Bout Time, By God CompuPro user group forming in San Francisco. Call (415) 665-4733 or write to Barry Hermanson, 1509 5th Ave., San Francisco, CA 94122 for information.

CROMEMCO

Silicon Valley Cromemco Users Meets 3rd Tuesday of the month at MCM Enterprises. 215 Hamilton Avenue, Palo Alto, CA. Call Emily Ott at (415) 854-5818 for details.

DATAFLEX

Dataflex User Group. For more information call Alex at (415) 433-7944.

DYNABYTE

Dynabyte Announcing M.A.D., Mutual Assistance, Dynabyters (Dinosaurians?) For owners of this orphan Z80 S100 machine. Call Woody McPheeters, (415) 548-3126 or write 3128 King St., Berkeley, CA 94703.

EAGLE

Eagle Computer Users Group. P.O. Box 3381, Saratoga, CA 95070, (408) 972-1965. General meetings are held on the second Saturday of the month at Mercury Savings, 350 Showers Drive, Mountain View (San Antonio Center) from 9:30 am to noon.

Screaming Eagles User Group For 8 and 16 bit Eagles. Quarterly newsletter, public domain disk. On CompuServe (CLUB) Sec. 3. $10/year individual, $20/year business. 101 Parnassus #1, San Francisco, CA 94117. (Voice) (415) 661-4362.

Eagle Computer Users Group—ECUG. Meets 2nd Mondays, 7 pm, 6132—66th Ave. (Southgate Library), Sacramento. Contact W. Jud Boies, P.O. Box 163506, Sacramento, CA 95816, (916) 443-1060.

ENABLE

ENABLE Users' Group. Supporting users of Enable, the integrated software package. Monthly meetings in San Francisco (contact Evan Christensen, 415/469-1863) and Walnut Creek (contact Sandi Baker, 415/944-0426). "Enabling" is a bimonthly newsletter for all users of the software. Write for free sample: Enabling, 591 Redwood Highway, Suite 3210, Mill Valley, CA 94941.

EPSON

Bay Area Epson Salts 125 Del Centro, Millbrae, CA 94030, (415) 697-0567.

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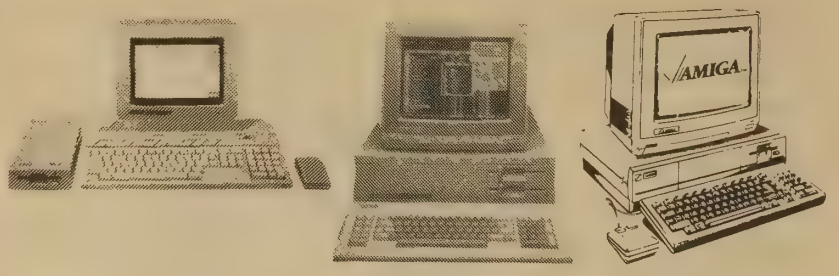

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Napa Valley Epson Users Group 1307 Hestia Way, Napa, CA 94558, (707) 253-8727.

FORTH

FORTH Interest Group, Berkeley Chapter. Meets 2nd Saturday of the month at 1 pm, 10 Evans Hall, UC Berkeley. Contact Mike Perry, (415) 644-3421.

FORTH Interest Group, Monterey/Salinas Chapter. Contact Bud Devins, (408) 633-3253.

FORTH Interest Group, Sacramento Chapter. Meets 2nd Tuesday of the month, 7 pm, 170B 59th St., Room C. Contact Tom Ghormley (916) 444-7775.

FORTH Interest Group, Bay Area Chapter. Meets 4th Saturday of the month, 10 am advanced, 1 pm beginning, at ABC Christian School Auditorium, Dartmouth and San Carlos Ave., San Carlos (408) 277-0668.

FORTH Interest Group, Stockton chapter. Contact Doug Dillon (209) 931-2448.

GAVILAN

Gavilan User Group. Meets 2nd Thursday, 7 pm, Lockheed Bldg 162. Contact R.W. Brown, 780 Manx Ave., Campbell, CA, (408) 379-2774. Gavilan BBS (408) 374-3974, 300/1200, 24 hours, free.

HEATHKIT

San Jose Heathkit Users Group. Meets first Wednesday at 7 pm at the Heathkit store on South Bascom Ave. in Campbell.

B.A.H.U.G. Heath/Zenith computers, CP/M and MS-DOS. Meetings at 2001 Middlefield Rd., Redwood City, CA, 7 pm, 2nd Thursday. Contact John Lindquist, 642 Hollenbeck Ave. #1, Sunnyvale, CA 94087.

NBHZUG North Bay Heath/Zenith Users Group. Devoted to Heath/Zenith computers in specific and MS-DOS, CP/M computers in general. Beginners and advanced. Meeting place varies, time 2nd Saturday, noon. Contact Martin Schaaf, (415) 454-6761 for information.

HEWLETT-PACKARD

HP Portable People user group to be formed. Contact Michael Felsenstein, 2366 40th Ave., San Francisco, CA 94116, (415) 564-8279.

INTEREX is the International Association of Hewlett-Packard Computer Users, with affiliated users worldwide approaching 10,000. Acting as an information resource for users of HP computers (HP3000, 1000, 900 and Series 100), INTEREX maintains libraries of user contributed software. The software is available through the CSL membership categories. INTEREX has three publications, one or two for each of the categories. Phone (408) 738-4848 or write User Services Department, 680 Almanor Ave., Sunnyvale, CA 94086.

IBM

South County PC Users Group Meetings held second Thursday of each month, at Software Center, 22406 Foothill Blvd., Hayward, CA. Public Domain club disks, newsletter and help on MS-DOS problems. Contact Debra Taylor, P.O. Box 7656, Fremont CA 94537-7656 for more info, or call (415) 276-5111.

Silicon Valley Computer Society. New users SIG, 7:30 pm, 2nd Wednesday; call Dick Meyer, (408) 723-0159. dBASE III SIG, 7:30 pm, 4th Thursday; call Thaine and Barbara Anderson, (415) 345-0152. WordPerfect SIG 7:30 pm, date variable; call Martin Van Derpool, (408) 238-8434. Software tools and graphics SIG, 7:30 pm, 4th Tuesdays; call Hal Sampson, (408) 866-7833. Artificial Intelligence SIG, 7:30 pm, 2nd Thursdays; call Kent Byron, (415) 656-0410. Telecom SIG, 7:30 pm, 1st Monday; call Scott Sawicki, (408) 243-8781. Lotus 1-2-3/Symphony SIG, 7:30 pm, 3rd Thursday; call Bill Welch, (408) 247-3405. C programming SIG, 7 pm, 3rd Tuesday; call Fletcher Johnson, (408) 946-0960.

California PC LAN Users Group, 1625 The Alameda, Suite 511, San Jose, CA 95126. (408) 289-1711.

Diablo Valley PC. An IBM PC User Group, monthly meetings, newsletter and public domain software library. Contact Jim McDonnel, president, 2261 North Main St. 117, Walnut Creek, CA 94596, (415) 933-1270.

The Bay Area Computer Society Emphasis on IBM PCs, networking and multi-user systems. P.O. Box 20583, Oakland, CA 94604, (415) 839-5786.

IBM PC Users Group of the Redwoods. Anyone interested in PCs and/or compatibles is welcome. Meetings at Yulupa School, 2250 Mesquite Dr., Santa Rosa, CA, 4th Thursday of the month, 7 pm. Contact Michael Adams, P.O. Box 5055, Santa Rosa, CA 95402, (707) 664-8320, (707) 546-3619.

Sacramento PC Users Group. Over 1000 members. Meetings at Holiday Inn Holidome, 5321 Date Ave., 7 pm, 3rd Wednesday. Contact Barney McCauley, P.O. Box 685, Citrus Heights, CA 95610, (916) 484-1048, or call the club number (916) 332-1944.

SF PC jr User Group meets monthly. Lectures and discussions on the usage of IBM PC jr software and hardware. Software and books library. For more information please send SASE to 2336 Market St., Suite 20, San Francisco, CA 94114. Meetings at 1550 Bay St., SF, every first Sunday at 7:30 pm.

San Francisco PC Users Group. Largest SF group focusing on IBM and compatibles. Over 150 disks of public domain software, excellent monthly newsletter. 800+ members, $30 yr. Write 3145 Geary Box 155, San Francisco, CA 94118. Meetings 8 pm, 3rd Mondays, Bldg A Fort Mason.

Monterey Bay PCjr Users Group. Meets at Legacy Computers, 431 Tyler, Monterey, CA 93940. Usually meets second Thursday of the month. Contact Lloyd Reece, (408) 899-5795. Mail to Box 1191, Seaside, CA 93955.

Valley PC Users Group. Individuals and corporate users of the IBM PC and compatibles; guest speakers from major vendors, public domain software, exchange problems and solutions. BBS 24 hours (209) 952-5021. Meeting address 731 Brookside Road, UOP School of Pharmacy, Rotunda Bldg., Stockton, 7 pm, 1st Tuesday. Contact Francis Pillow, P.O. Box 77748, Stockton, CA 95207, (209) 478-9697.

FUNHUG PC—Fremont, Union City, Newark, Hayward User Group. For recreational/home users of IBM PC and compatibles. We meet on the third Wednesday of each month at 5445 Central Ave., Suite 1, Newark, at 7:45 pm. We have software/hardware reviews and visits from manufacturers. Our library contains over 250 disks of public domain software. Bring $2 to help pay for meeting place. For more info send SASE to Russ Fisher, 36015 Pizarro Dr., Fremont, CA 94536.

Marin-Sonoma PC Users Group. Meets last Tuesday of the month, 7:30 pm, in the Whistlestop building, 930 Tamalpais St., San Rafael, CA. Park in Savings and Loan parking lot across the street. Classes, SIGs, 24 hour BBS at 415/927-1216. Emphasis on business applications and solutions. For additional information contact John Hawkins (415) 525-8500, P.O. Box 6476, San Rafael, CA 94903.

Santa Cruz Computer Society. An IBM PC and compatible for beginning to advanced users, programmers and decision makers. Meetings 3rd Thursday, 7 pm, 1555 Soquel Dr., Santa Cruz (Dominican Education Center). Call Daniel Payne, (408) 476-0203.

San Francisco Computer Society, a CP/M and MS-DOS user group, meets on the first Monday of each month, 7:00 pm, at Homestead Savings, 5757 Geary Blvd., San Francisco (except for the April meeting which will be held on 4/13 at 6:00 pm.) Membership is free, meetings are free and open to members and non-members. Member of FOG. For more information call Ralph Gallagher at (415) 929-0252.

IBM Compatible User Group of Silicon Valley. Meets monthly to share information about IBM compatible or clone computers. BBS (408)287-8326, 300/1200, 5:30 pm-7:30 am M-F, 24 hours weekends. Call (408) 287-8325 for information, or write to 1515 The Alameda, Suite 303, San Jose, CA 95126.

CP/MUSC, A FOG affiliate, membership open to all persons interested in MS-DOS or CP/M computers. Meetings the second Tuesday of each month. Wheelchair access. Guest speakers, demonstrations, MS-DOS and CP/M software libraries. Info: P.O. Box 628, Ben Lomond, CA 95005, (408) 338-6365, (408) 476-0504.

Berkeley P.C. Users Group. Meets on the 2nd Tuesday of each month, 7:00 pm, at 2618 Telegraph Avenue, Berkeley. For more info, contact Mel Mann, 1145 Walnut Street, Berkeley, CA 94707, (415) 527-2177 or Andy Wong, 2618 Telegraph Ave., Berkeley, CA (415) 845-4814.

KAYPRO

BAKUP (Bay Area Kaypro Users and Programmers). One of largest Kaypro user groups in country. Meet 3rd Tuesday of month, 7:30 pm. We support our RBBS/RCPM for members, publish a monthly newsletter, have a 40 volume software library, and a lot of fellow KP'ers! Write for info, $10 per year to join: Membership Coordinator, P.O. Box 20181, Oakland, CA 94620.

KAYFUN Peninsula Kaypro Users Group meets second Thursday of every month at 7:30 pm in the ground floor social room, 222 Laurel St., San Carlos. Bimonthly newsletter, public domain software library, and publication library. Membership $12 per year. Every third meeting a Free Forum night dedicated to individual help. Contact Larry Welling, 222 Laurel St. #310, San Carlos, CA 94070, (415) 593-9981.

South Bay Kaypro Users Group (SBKUG). Meetings at 10400 Torre Ave., Cupertino. We have an extensive library of public domain software, including over 200 diskettes of the SIG/M library. The floor is open for questions at each meeting, and we welcome new members at all levels of ability. Bring your machine, or at least your diskettes. For meeting night call Chuck Hansen at (408) 257-5244, or write P.O. Box 390088, Mountain View, CA 94039-0088.

HAYPROS. Kaypro User's Group - informal format, dealer supported. Meets at Computer Insights, 40957 Grimmer Blvd., Fremont, CA 94538, 1st Tuesday each month. Contact Ted de Castro, 18841 Vineyard Rd., Castro Valley, CA, (415) 581-8882.

CP/MUSC, A FOG affiliate, membership open to all persons interested in MS-DOS or CP/M computers. Meetings the second Tuesday of each month. Wheelchair access. Guest speakers, demonstrations, MS-DOS and CP/M software libraries. Info: P.O. Box 628, Ben Lomond, CA 95005, (408) 338-6365, (408) 476-0504.

San Francisco Computer Society, a CP/M and MS-DOS user group, meets on the first Monday of each month, 7:00 pm, at Homestead Savings, 5757 Geary Blvd., San Francisco (except for the April meeting which will be held on 4/13 at 6:00 pm.) Membership is free, meetings are free and open to members and non-

members. Member of FOG. For more information call Ralph Gallagher at (415) 929-0252.

Silicon Valley FOG. Supporting all types of CP/M micros. Two meetings monthly, one at the Campbell Public Library, 70 North Central Ave., Campbell, and the other at the Saratoga Community Library, 13650 Saratoga Ave., on the southeast corner of Saratoga and Fruitvale Avenues, Saratoga. Call (408) 371-8699 for further information.

LEADING EDGE

Bay Area Leading Edge User Group. Interested in starting a Leading Edge User Group? Write to Jim Williams, 26765 Calaroga Ave., Hayward, CA 94545.

MACINTOSH

EBMUG (East Bay Macintosh User's Group) Friendly, informal. Public domain software and computer book library. Information exchange. Speakers. Product discounts. Free admission. Meets at West Berkeley Public Library, 1125 University Ave., Berkeley, CA, third Tuesday of each month at 7:30 pm. Contact Shep Tamler at P.O. Box 7816, Berkeley, CA 94707-0816.

Bay Area MacForum New and experienced Macintosh users. 2 monthly meetings: one immediately following San Francisco Apple Core meeting at Religious Activities Center, Bldg. 689, in the Presidio, San Francisco, 3rd Saturday of the month; one at Software Center, The Willows Shopping Center in Concord, second Monday of the month, 7 pm - 9 pm. For info: 1515 Sloat Blvd. #2, San Francisco, CA 94132, (415) 566-2342.

Berkeley Macintosh User Group (BMUG). 1442A Walnut St., #153, Berkeley, CA 94709. Free meetings on campus (UCB). General meetings: every Thursday 6 pm, Physical Sciences Lecture Hall. Beginners: 6 pm Tuesdays, 230 Wheeler. Developers: 6 pm Wednesdays, 30 Wheeler. Call the office for this week's topic. Reese Jones, (415) 849-9114. BBS (415) 849-BMUG.

MacNexus. Sacramento's Macintosh User Group. 150 members, but still informal. Extensive public domain collection. Contact Gail McGovern, P.O. Box 163058, Sacramento, CA 95816, (916) 446-2411. Meetings 3rd Thursdays, 6:30 pm, Almond Plaza, 17th & C, Sacramento.

MacProgram Unlimited. Meets monthly. Informal with hands-on testing of different programs. Public domain and standard programs in rental library. Meets Albany YWCA, Kains and Solano, Saturday 9:30 am. Contact William Gong, P.O. Box 7704, Berkeley, CA 94707. (415) 527-1756.

Stanford Macintosh Users Group (SMUG) meets on the first Monday of the month at 7 pm in Kresge Auditorium, Stanford Campus. Meetings include speakers, discussions, answers and sale of library disks and other SMUG items. The Excel, Novice, Developer's, Japanese Word Processing Groups each meet twice monthly. SMUG publishes a newsletter and runs a BBS. Call the SMUG hotline at (415) 723-SMUK for a listing of current events. Stanford Macintosh Users Group, P.O. Box 2354, Stanford, CA 94305-0135.

Club Mac of Monterey. Macintosh User Group of Monterey Bay Area. Membership with monthly newsletter $25. Meetings 7 pm, last Wednesday of the month, Santa Catalina School, Monterey. Contact Richard Ware, P.O. Box 222988, Carmel, CA 93922.

Macs Of Marin. Macintosh users of Marin County. Emphasis on education of Mac users. Meetings: Room 104, Science Building, College of Marin, 2nd Thursday of each month, 7:30 pm. Contact Steve Salzman, (415) 459-5707.

maCruzers, a Macintosh user's group, meets every second Wednesday of the month at Louden Nelson Recreation Center in Santa Cruz, 7 pm. For information call (408) 459-1644, or leave mail on The WELL (415-332-6106) for Paul Foraker [sforaker]. Wood Ring BBS (408) 423-7205, 18 hrs/day, several megs of shareware/pd utilities and games; making the effort to have the latest version of important DAs and utilities.

Association of Apple 32 Users. Meetings at GTE in Mountain View, 2nd Saturday of the month. Contact Ken Silverman, P.O. Box 634, Santa Clara, CA 95052, (408) 263-0398.

Bay Area Mac M.S. Basic Users Anonymous. B.A.M.M. S.B.U.A. Meets second Tuesday of each month, 7:00 pm, at Sanctuary of Noe Valley Ministry, 1021 Sanchez Street, San Francisco. First tentative meeting will feature utility program demonstration. Bring a disk and get a copy. Also: Show & Tell, Kvech, Help and Trash-The-Low-Level-Languages. For more info, contact Ted Jones, 4145 24th Street, San Francisco, CA 94114, (415) 826-9239.

Mac Health User Group. For DentalMac, Medimac and Chiromac users, and interested others. To discuss ways to better use these billing and accounts receivable programs and the Macintosh in healthcare practice. Meets at various times and locations. For more info, contact Robin Guess, 896 24th Avenue, San Francisco, CA 94121, (415) 387-3042.

MICROMATE

East Bay Micro-Mate Users' Group. CP/M (3.0) public domain software available. Meetings at 757 Longridge Rd., Oakland, 1st Thursday of each month. Contact Ed Miler, P.O.B. 402, Moraga, CA, 94556, or call (415) 376-1611 for info.

MIDI

MIDI Applications Group. Meets first Saturdays of the month. Contact John Komlenic, 1411 10th Ave., Oakland, CA 94606, (415) 465-6216.

MORROW

BAMDUA (Bay Area Micro Decision Users Association). Meets on last Tuesday of the month, 7:30 pm. Call (415) 644-2805 for location. Monthly newsletter.

SMUG (Stanford Morrow Users Group). Meets 2nd Wednesday of each month at 7 pm on Stanford Campus, Shultz Auditorium, Health Research and Policy building, Campus and Lomita Drive. Other CP/M users welcome. For further information call Ross E. Voyles, (408) 243-1455.

CP/MUSC, A FOG affiliate, membership open to all persons interested in MS-DOS or CP/M computers. Meetings the second Tuesday of each month. Wheelchair access. Guest speakers, demonstrations, MS-DOS and CP/M software libraries. Info: P.O. Box 628, Ben Lomond, CA 95005, (408) 338-6365, (408) 476-0504.

PETMUG — Petaluma Morrow Users Group. Meets Westamerica Bank, Washington Square, Petaluma, 7:30 pm, 4th Thursday of the month. Contact Frank Nance, president, 293 Circulo Puebla, Rohnert Park, CA, (707) 585-2980.

San Francisco Computer Society, a CP/M and MS-DOS user group, meets on the first Monday of each month, 7:00 pm, at Homestead Savings, 5757 Geary Blvd., San Francisco (except for the April meeting which will be held on 4/13 at 6:00 pm.) Membership is free, meetings are free and open to members and nonmembers. Member of FOG. For more information call Ralph Gallagher at (415) 929-0252.

Silicon Valley FOG. Supporting all types of CP/M micros. Two meetings monthly, one at the Campbell Public Library, 70 North Central Ave., Campbell, and the other at the Saratoga Community Library, 13650 Saratoga Ave., on the southeast corner of Saratoga and Fruitvale Avenues, Saratoga. Call (408) 371-8699 for further information.

NORTHSTAR

INSUA Largest North Star users group in the world. Members' newsletter and software library. Membership dues $20. Contact George Riddle, P.O. Box 2910, Fairfield, CA 94533.

OSBORNE

East Bay FOG (First Osborne Group) Osborne, Kaypro and Morrow. Meets second Wednesday of the month at B&B Electric, 2832 Ford Street, Oakland. 6 pm workshops, 7:30 pm program. For info contact 5497 Taft Ave., Oakland, CA 94518; phone (415) 272-9099.

SMOG3 Osborne User Group (Peninsula) Meets first and second Monday of every month at Crane Place, 1331 Crane, Menlo Park. Call Phil Moore at (415) 325-2442.

MTDOG (Mt. Diablo Chapter-First Osborne Group) Meetings 7 pm, 3rd Wednesday each month in Diablo Room (top floor), SF Federal Savings and Loan, 1660 Olympic Blvd. (cross-street: California), Walnut Creek. Software library, software / hardware / service demonstrations, sharing problems and solutions. For meeting info contact Larry Sydes, (415) 933-2665.

North Bay First Osborne Group. Meets first Thursday of the month at 7:30 pm, Valley Oaks Apts. Rec. Hall, 2600 Northcoast St., Santa Rosa, CA (off West Steele Lane). Call (707) 546-0145 for more information.

CP/MUSC, A FOG affiliate, membership open to all persons interested in MS-DOS or CP/M computers. Meetings the second Tuesday of each month. Wheelchair access. Guest speakers, demonstrations, MS-DOS and CP/M software libraries. Info: P.O. Box 628, Ben Lomond, CA 95005, (408) 338-6365, (408) 476-0504.

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NEC

Bay Area NEC/100 Users. For NEC 8201A and TRS-80 Model 100. Meets College of Alameda, 1st and 3rd Thursdays, 7:30 pm. Contact Rachel Holmen, c/o Truly Portable, Box 2916, Oakland, CA 94609, (415) 658-1889. Call for room number, which changes occasionally.

PAPERBACK SOFTWARE

V-P Planner Special Interest Group. Meets 2830 Ninth St., Berkeley, CA, every third Thursday, 7:30 pm. Contact Lloyd W. Bracewell, 6200 Harwood Ave., Oakland, CA 94618, (415) 547-8205.

PICK

Northern California Pick Users. NCPU mails a monthly newsletter, meets on the third Tuesday of the month for a dinner meeting with Pick related program, holds Pick educational courses, and has many other member benefits. P.O. Box 884474, San Francisco, CA 94188-4474, (415) 284-4063.

PIED PIPER

Pied Piper Users Group Owners of Pied Piper CP/M based computer are invited to call or attend the PPUG. Meets last Tuesday of the month at 7:30 pm. Please call (415) 638-1146.

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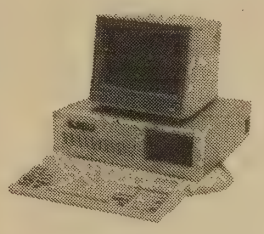

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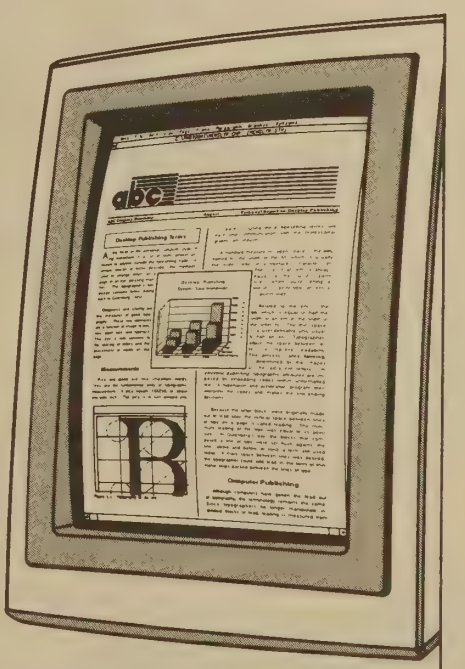

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R2E

North Bay R2E Forming user group for R2E System microcomputer users. Please call (415) 235-1598 for information.

RADIO SHACK TRS

TRS-80 Computer Society of Diablo Valley The purpose of this group is the sharing of information, problem solving, support group, purchasing discounts, support for professional, business and educational users of Radio Shack computers. Out-of-area members welcome. Meetings second Tuesdays of the month, Willow Creek Center, 1026 Mohr Lane, Concord, 7:30-9:30 pm. Doors open at 7. Contact Roy or Sue Copeland, P.O. Box 23438, Pleasant Hill, CA 94523, (415) 372-7003.

TRS Nybblers. MS-DOS and Tandy. Newsletter, help and education, access to all popular public libraries (PC-SIG, CompuSoft, Public Brand. Instruction and problem solving. Meetings: MS-DOS — 25555 Hesperian Blvd., Hayward, Chabot College, 8 pm 3rd Friday, Room 1564; Tandy 2nd Friday, 8 pm, Room 600). Contact B.B. Jarvis, 1975 Paseo Del Cajon, Pleasanton, CA 94566. (415) 846-3575.

Bay Area Chapter of the California Computer Federation, a user group for Color Computer users formed by The Redwood Color Board. Write the R.C.B., P.O. Box 7007, Redwood City, CA 94063 for details.

South Bay TRS 80 Users Group (SBUG). For info write P.O. Box 60116, Sunnyvale, CA 94088 or call Don Rhodes at (408) 996-1008. BBS: (408) 253-6293. Meetings, Cupertino library, 3rd Tues., 7:15 pm.

San Mateo TRS-80 Users Group. Meets 4th Thursday of the month at Cal Fed S&L, 2600 Ocean Ave., SF., 7:30 pm. BBS (415) 574-7684, 300/1200, 8-N-1 settings. Contact Julian Kaufman, (415) 992-1783.

Bay Area NEC/100 Users. For NEC 8201A and TRS-80 Model 100. Meets College of Alameda, 1st and 3rd Thursdays, 7:30 pm. Contact Rachel Holmen, c/o Truly Portable, Box 2916, Oakland, CA 94609, (415) 658-1889. Call for room number, which changes occasionally.

Byte Bandits of America. Meets 2nd Saturdays 1 pm, 4th Wednesday 7 pm, 780 Manx Ave., Campbell, CA. Call Robert W. Brown, (408) 379-2774 for information. BBS: 300/1200. 24 hrs., free, (408) 374-3974.

Club 100. A Model 100 users Group. Dedicated to Model 100, 103, 200, NEC 8201A and Olivetti M10 users. Contact Richard Hanson, club secretary, P.O. Box 23438, Pleasant Hill, CA 94523, or call our club BBS at (415) 939-1246. We are a very active, on-line club with many helpful members, and a large Model 100 public domain library available to members.

United Computer Federation: San Francisco Chapter. Meets the fourth Tuesday of each month at the Foster City Fashion Island Mall community room. Meeting starts at 7:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy color Computer user groups. For more information phone Brad Ryan, Chapter Vice President, at (415) 469-3172.

REALWORLD

Bay Area REALWORLD Users Group meets the third Tuesday of each month. For more information contact Mitch Paioff, 5097 Tisdale Way, San Jose, CA 95130, (408) 866-4310.

ROYAL

Royal Alphatronic, San Francisco. New group forming. Call Tom Rutkowski at (415) 863-4794 for information or write P.O. Box 421161, San Francisco, CA 94142.

S-100

S-100 Bus Users Group. Meets fourth Tuesdays, 7:30 pm, Community Room, El Paseo de Saratoga, San Jose. Contact Dick Delp, Box 10404, San Jose, CA 95157, (408) 245-2137. CP/M-80, S-100 emphasis. CP/M and MS-DOS libraries.

SANYO

Sanyo MBC 1100-1150 user group now forming in Oakland. Call or write (415) 534-1981, 5885 Bancroft Ave., Oakland 94605 for meeting time and location.

Sanyo National Users Group. SNUG is a central resource for Sanyo information and public domain. Inquiries welcome! Contact John Egan, 101 Irving Ct., Pleasant Hill, (415) 827-3023.

Sanyo PC Compatible Club. SPCCC supports Sanyo 16 bit machines and similar PC clones. We publish the Sanyo PC Hackers Newsletter (International), subscription rate $20/yr., and maintain a public domain software library. Meeting at the Mercury Room of Mercury Savings & Loan, 99 El Camino Real, Menlo Park, CA, 7-9 pm the first Wednesday of the month. Contact Victor R. Frank, 12450 Skyline Blvd., Woodside, CA 94602, (415) 851-7031.

SOUTHERN PACIFIC

ICOLATUG. User group for owners of Southern Pacific Ltd's Mountainside ICO and LAT single board computers. Exchange tips and programs. Contact Andrew P. Porter, 774 Joyce St., Livermore, CA 94550.

TEXAS INSTRUMENTS

San Francisco 99ers One General Meeting per month plus uncountable mini-meetings for training. Over 500 programs available in library. Meetings 12 noon, third Saturday of the month, 3751 Elston Way, Oakland. Contact Gary L. Anderson, 24816 Mango St., Hayward, CA 94545, (415) 786-1776.

South Bay T.I. User Group. One general meeting per month. We have training session, library and own bulletin board (408) 578-6264. Meets first Thursday of each month at 7:00 pm, Cupertino Library, 10400 Torre Ave., Cupertino, (between DeAnza Blvd. and Rodriques Ave.) starting at 7 pm in the basement conference room. Call v.p. Keith Felix, (408) 258-6678.

Nor-Cal TI 99/4A Users Group. Learn more about your Texas Instruments 99/4A computer. Free software, sources of hardware and software. Contact Dave Steady, 324 Howard St., Petaluma 94952, (707) 762-6561. Meetings at Retail Clerks' Union Hall, 382 Tesconi Ct., Santa Rosa, CA, first Wednesday of the month at 7 pm.

Santa Clara Valley TI Pro User Group. Meetings 7 pm, 4th Thursdays, location varies. Contact Tom Schoen, PO Box 871, Newark, CA 94560, (415) 793-6670.

THEOS/OASIS

Theos/Oasis Users Bay Area Group. Greater SF Bay Area users of THEOS and OASIS multi-user operating systems meet quarterly to focus on "hot" issues and share info. Contact Joe Trimble, 236 Frisbie St., Oakland, CA 94611, (415) 839-3281.

TIMEX SINCLAIR

East Bay Timex/Sinclair User Group (EBZUG) Timex/Sinclair user group. S/W library and newsletter. Usually meets 4th Thursday of the month at 7:30 pm, CALL FIRST FOR EXACT TIME AND PLACE. Contact Russ English, 415/465-3116 or write to Woody McPheeters at 3128 King St., Berkeley, CA 94703.

Peninsula Timex/Sinclair User Group (PUG) Timex/Sinclair user group. S/W library and newsletter. Meets at Peninsula Hospital, 1783 El Camino, Burlingame. Meets 3rd Sunday of the month at 1 pm. Contact George Mockridge, 311 Michelle Lane, Daly City, CA 94015, (415) 878-1773

Silicon Valley Timex/Sinclair User Group (SVTSUG) Timex/Sinclair user group: 6675 Clifford Drive, Cupertino, CA 95014-4530. Bill Miller (408) 253-3175. SW library and newsletter. Meets at Cupertino Library, 10400 Torre Ave., Cupertino, CA, last Tuesday of the month.

UNIX

The Unix C-Club Seminars, public domain softwares, information exchange, Unix hardwares and softwares. Discount on purchases. Meets 2nd Saturday of each month at 10 am. Call Gilbert B. Dalit at (415) 348-6723 or (408) 238-5587 for more information, or write: 122 2nd Ave., Suite 214, San Mateo, CA 94401.

VECTOR

Bay Area Vector Group Meeting held regularly. Please call to be put on mailing list. You will be informed of next meeting! Contact Peter Tjeerdsma, 764 Cole St. #4, San Francisco, CA 94117. Phone (415) 681-0308.

VICTOR

Victor* Group is the San Francisco Bay Area Victor User's Group. We have three chapters East Bay, South Bay, and San Francisco. Members can attend meetings at any of the chapters or all of them. The more the merrier. Dues are $30 a year, which includes a subscription to VictorTalk, membership in a Victor-exclusive discount buying cooperative, and the right to buy from our public domain library at a discount. South Bay meetings are held the first Thursday of each month at Computer Insights, 40957 Grimmer Blvd., Fremont at 7:30 pm. Contact John Kimber (415) 797-6423. East Bay meetings are held the second Wednesday of the month at 7:30 pm; contact Boardman Moore (415) 283-3285 for location and further info. San Francisco meetings are held the third Sunday of the month at 5 pm at Homestead Savings, 130 West Portal, San Francisco. Contact Joe Zmuda, (415) 584-4048.

VTC-1050

VTC-1050 User's Group. Establishing a VTC-1050 User's group and newsletter. Interested parties please call or write Ken Phillips, 4349 Blackford Ave. #1, San Jose, CA 95129, (408) 973-1353.

WORD PERFECT

Word Perfect of Santa Cruz. Now a SIG of Santa Cruz Computer Society. Telephone network, meetings occasionally as needed. 2120-87 N. Pacific, Santa Cruz, CA 95960-2743. Contact Sylvia Caras, (408) 426-7636.

South Bay Word Perfect User Group. Call Martin Van Derpool, (408)238-8434 for information.

ZENITH

Zenith User Group of San Francisco. Zenith users are forming a user group and bulletin board for Zenith computers. Hands on demonstrations will be provided on the full line of Zenith hardware. Meetings at 1325 Howard St., SF, CA. Contact Stan Kelley, 415-861-3068.

B.A.H.U.G. Heath/Zenith computers, CP/M, MS-DOS (300/1200 baud BBS 415-365-7836). Meetings 2001 Middlefield Rd., Redwood City, CA, 7 pm second Thursday. Contact John Lindquist, 642 Hollenbeck Ave., #1, Sunnyvale, CA 94087.

NBHZUG North Bay Heath/Zenith Users Group. Devoted to Heath/Zenith computers in specific and MS-DOS, CP/M computers in general. Beginners and advanced. Meeting place varies, time 2nd Saturday, noon. Contact Martin Schaaf, (415) 454-6761 for information.

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Fontasy *continued from page 82*

Fontasy offers a wide variety of printing styles and document sizes.

are printed in two-pass printing. Some output looks like laser quality when it's printed in quadruple four-pass. Using the two-pass option, it takes around two to three minutes to print out a page of text on my Epson LX-90, which has an NLQ speed of 20 cps. A printer such as the Brother HR1509 will print twice as fast as my Epson.

If you put a lot of art on the page it will take longer, maybe four to six minutes, to print. It takes *Fancy Font* 10 minutes to do something similar, and other programs take even longer. Using quadruple density with *Fontasy*, it takes from eight to 14 minutes to print out a page with an appearance suitable for resumes and ad circulars.

Fontasy's own graphics capabilities can be expanded with several public domain/shareware screen capture utilities. GRCP, written by Glen Knight of Ontario, Canada, is a small memory resident program which can capture a graphics screen from any compatible drawing program, and either save it to disk or keep it in memory to be pasted directly onto the screen.

Suppose you like one of the clip-art files in *Newsroom Pro* and would like to run it in *Fontasy*. Another shareware utility called *CAP* will take entire screens from almost any program and convert them into *Basica* B/SAVE screens or *PC Paintbrush* screens. You can use *CAP* to display an NRPRO screen in *Basica* and then use *GRCP* or *Fontasy's* own GETBLOCK command to edit it along with your text. The advantage of using *GRCP* is that you can custom slice any little piece you want out of the screen and position it with the cursor where you want to place it in *Fontasy* without doing any disk operations.

TIPS FOR USING FONTASY

If you are running DOS 2.1, be sure the 10 standard IBM patches have been installed, or else your printscreen key will be activated every time you check the status layout of the page you're editing.

Printer fonts look better when they are magnified and reduced by whole numbers than with the fractional capability of the block sizer. Some fonts will look better if the character width and space between letters is adjusted when you vary the size of the font.

Quadruple density printing should be reserved for special headers and artwork. Individual pages of text can be printed quickly in two-pass mode (dark printing).

When using column-template options to read in ASCII text, make sure there are no hard carriage returns except at new paragraphs. *Fontasy* will respond to these by starting a new line, or leaving extra spaces if the line joining option is on. The hard carriage returns can be removed in *Word Star* by globally deleting Control-N. In *PC Write*, the right margin can be left unset and the file can be reformatted. This will cause the text to be strung in one continuous line, except where you have purposely started new paragraphs.

When setting a template, be sure to set your top margin large enough to clear the bottom of any banner or picture you have loaded. You can then place the cursor anywhere and use the variable margin feature to format the text correctly from that point.

Fontasy is available from Prosoft, 28 Bellaire Ave., No. Hollywood, California, 91603, and they have telephone support (818/765-4444). It lists for $69.95, but if you attend local swap meets, you may find it discounted 10-15%.

GRCP is available on Info-tek BBS at (416)454-3046 or CompuServe (76364,446), as well as on several Bay Area BBS systems.

CAP is available from *PCPaint* Picture Swapline (714) 545-8100 and locally in the Bay Area. □

Telecommunications *continued from page 130*

and the Federal Bureau of Investigation. The agents tried to get a commitment from these IPs to voluntarily censor some of their technical data bases.

"Until you have received a cordial visit by representatives of the FBI, the CIA and the Department of Defense," says Jack Simpson, the president of Mead Data Central, "you can't appreciate the true extent of this issue."

To counter such pressure tactics, Congress is beginning to apply its own brand of pressure: legislation.

Early this year US Representative Jack Brooks, (D-Texas) introduced HR 145, the Computer Security Act of 1987. The bill calls for the transfer of authority of nondefense computer security programs form the NSA to the National Bureau of Standards (NBS). The bill, in effect, distances the DoD from unclassified data bases, thereby making it much more difficult for the DoD to attach the "sensitive, but unclassified" tag to publicly available information.

The bill faces stiff opposition from the Pentagon. Critics of the bill argue that the NSA is better able to handle the task of computer security, simply by virtue of the fact that they've had more experience in security matters than the civilian-run NBS.

YOUR LIBRARY PASSPORT, PLEASE

The shadow of Orwell's 1984 is all too real. The possibility that your every online keystroke could be monitored and reported to the NSA is not fantasy.

Donald Latham, assistant secretary of defense for communications, command, control and intelligence, told the *Post*, "I'm very concerned about what people are doing [when online]—not just the Soviets. If that means putting a monitor on Nexis-type systems, [run by Mead Data Central], then I'm for it."

Note that he's talking about private data bases, and unclassified data.

Allen hints that Uncle Sam may force IPs into a type of self-censorship through the use of speeches and other directives. "That would be the worst of all possible worlds," he says. "Who knows where it could end? One day we might be required to have a passport to enter a public library."

EPILOGUE

On February 16, 1987, Mead Data Central voluntarily purged the National Technical Institute Service (NTIS) file from its system. (NTIS remains available through other IPs, such as Dialog.)

Simpson, in testimony before the House Government Operations subcommittee, explained the decision to remove the file as a combination of "economic considerations [and to] remove potentially harmful information that might have been misclassified over time by the Department of Defense, and to sharpen the point that all remaining information delivered by MDC is clearly unclassified and publicly available.

"This may have removed MDC from concern under NSDD 145. But what about other providers of NTIS?"

Good question. We all know what Mr. Orwell's response would be. □

UPDATE

At press time the White House has calmed some of the controversy surrounding NSDD-145 by rescinding the directive signed on October 29, 1986 by former NSC advisor John Poindexter.

Rep. Jack Brooks (D-Texas), chairman of Committee on Government Operations, read into testimony before his Committee, a letter from National Security Advisor Frank Carlucci, which officially carried the rescinding order. "While the issue of information classification and usage is not fully resolved, the letter rescinding the directive is a major step in the right direction," said Paul G. Zurkowski, president of the Information Industry Association (IIA).

In addition to the Carlucci letter, a letter from White House Chief of Staff Howard Baker said that the policy outlined in NSDD-145 would be reviewed, but remain in effect until further notice.

"Clearly the whole problem of information classification is not over by a long shot," said David Payton, director of government relations for IIA. "All that was rescinded was a piece of paper with a definition on it. The underlying policy in NSDD-145 still stands. So we're back to where we were a couple of years ago: the definition of 'sensitive but unclassified' is in the presidential directive, but nobody knows what it means."

The White House gave no time frame for the review process to be completed.

—Brock Meeks

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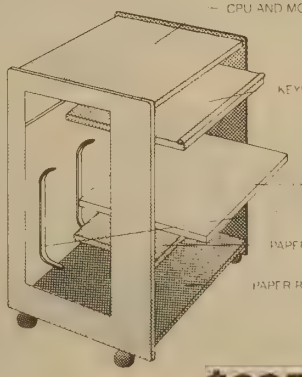

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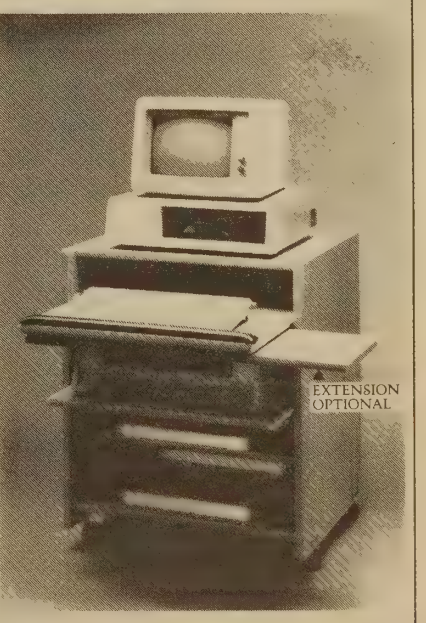

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